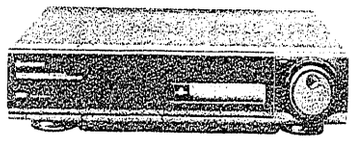
HITACHI

SERVICE MANUAL

TK | No. 3490E

VT-S751A
VT-S751AW



Technical Data

SPECIFICATIONS

Recording:	Rotary two head Helical Scan Azimuth Recording
Video:	NTSC Color EIA Standard
Cassette:	S-VHS, VHS type
Heads:	5 video heads: 2 for SP 2 for EP 1 Flying erase head 2 Hi-Fi audio heads 1 Full track audio/video erase head 1 Combination head for control track, audio erase and audio record/play (3 heads/single housing)
Tape Speed:	33.35 mm/sec (SP), 16.67 mm/sec (LP) (playback only), 11.12 mm/sec (EP)
Tape Width:	12.7 mm
RF Output:	Channel 3 or Channel 4
RF Input:	UHF/VHF 75 ohm
Tuning Range:	VHF LOW CH, 2 ~ 6 (54 MHz ~ 88 MHz) VHF MID CH, A-5 ~ A-1 and A ~ I (90 MHz ~ 174 MHz) CATV VHF HIGH CH, 7 ~ 13 (174 MHz ~ 216 MHz) VHF SUPER CH, J ~ W (216 MHz ~ 300 MHz) CATV VHF HYPER CH, W+1 ~ W+28 (300 MHz ~ 468 MHz) CATV UHF CH, 14 ~ 69, W+29 ~ W+84 (470 MHz ~ 806 MHz)
Video Input:	1 ~ 2 Vp-p 75 ohm Unbalanced
Video Output:	1 Vp-p 75 ohm Unbalanced
Audio Input:	316 mV rms (−7.8 dB) 47 kohm
Audio Output:	316 mV rms (−7.8 dB) 1.5 kohm
Video Recording S/N:	Better than 46 dB (SP), Better than 40 dB (EP)
Horizontal Resolution:	S-VHS mode 400 lines VHS mode 240 lines (SP), 230 lines (EP)
Audio Response:	50 Hz ~ 10 kHz (SP), 100 Hz ~ 6 kHz (EP)
Audio S/N:	Better than 43 dB (SP), Better than 40 dB (EP)
Hi-Fi Audio	
Frequency Range:	20 Hz to 20 kHz
Dynamic Range:	90 dB
Wow and Flutter:	Less than 0.005% WRMS
Power Input:	AC 120V 60 Hz (For A) AC 100-110V, 115-127V, 200-220V, 230V-250V, 50/60Hz(For AW)
Power Consumption:	36W Nominal
Cabinet Size:	17-1/8"(W) x 4"(H) x 15-3/16"(D), 43.5(W) x 10.1(H) x 38.4(D) cm
Weight:	17 lbs (7.7 kg)
Accessories:	1 ~ Coaxial cable, 1 ~ Remote control unit, 3 ~ Batteries 1 ~ Audio/video connection cord, 1 ~ S video cable

Design and Specifications subject to change without notice.

S VHS

This video deck is a S-VHS type video recorder. For proper operation, only the S-VHS or VHS type cassette must be used.

MANUALS RELATED TO THE VT-S751A

Name of Manual	Language	Manual No.	Chapters included
Technical Data	English	3490E	Chapters 1-6
Adjustment	French	3492F	Chapters 3,4
Technical Information	English	3491E	———

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

VIDEO CASSETTE RECORDER

August 1991 TOKAI WORKS

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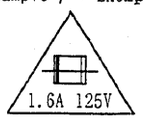
CAUTION AGAINST FUSE REPLACEMENT MARKING /
MESURE DE PRÉCAUTION À PRENDRE À PROPOS DES MARQUES DE FUSIBLE / :

CAUTION : FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND SAME RATING FUSE IN ACCORDANCE WITH THE FUSE SYMBOL MARKING.
MESURE DE PRÉCAUTION : POUR ASSURER À L'APPAREIL UNE PROTECTION PERMANENTE CONTRE TOUT RISQUE D'AMORÇAGE ÉLECTRIQUE, REMPLACER UNIQUEMENT PAR UN FUSIBLE DE MÉME TYPE ET DE MÉME CATÉGORIE CONFORMÉMENT AUX MARQUES INDIQUÉES SUR LE FUSIBLE.

* Example / * Exemple



This symbol indicates Fast Operating Type 1.6A, 125V Fuse.
Ce symbole se rapporte à un fusible à fusion rapide de type 1,6A, 125V

CHAPTER 1

SAFETY PRECAUTIONS

NOTICE: Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis.

1. When replacing a chassis in the instrument, all the protective devices must be put back in-place, such as barriers, non-metallic knobs, adjustment and compartment covers/shields, isolation resistors/capacitors, etc.
2. When service is required, observe the original lead-dress. Extra precautions should be taken to assure correct lead dress in the high voltage circuit.
3. Always use the manufacturer's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by other manufacturer's. Furthermore, where a short-circuit has occurred, replace those components that indicate evidence of overheating.
4. Before returning an instrument to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the instrument by the manufacturer has become defective or inadvertently defeated during servicing.

Therefore, the following checks should be performed for the continued protection of the customer and service technician.

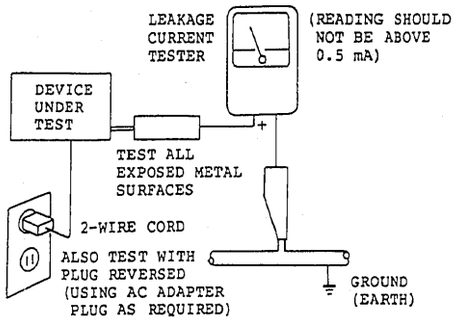
Leakage Current Cold Check

With the AC plug removed from the AC120V, 60Hz source, place a jumper across the two plug prongs. Turns the AC power switch on. Using an insulation tester (DC500V), connect one lead to the jumpered AC plug and touch the other lead to exposed metal parts (antennas, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of 0.3 Mohm and a maximum resistor reading of 5 Mohm. Any resistor value below or above this range indicates an abnormality which requires corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

Leakage Current Hot Check

Plug the AC line cord directly into a AC120V, 60 Hz outlet (do not use an isolation transformer for this check).

Turn the AC power switch on. Using a "Leakage Current Tester", measure for current from all exposed metal parts of the cabinet (antennas, screwheads, metal overlays, control shaft, etc.), particularly an exposed metal part having a return path to the chassis, to a known ground (earth) (water pipe, conduit, etc.). Any current measured must not exceed 0.5 mA.


LEAKAGE CURRENT TESTER
(READING SHOULD NOT BE ABOVE 0.5 mA)
DEVICE UNDER TEST
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
GROUND (EARTH)

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE UNIT TO THE CUSTOMER.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.
Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.
Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies of, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

FOR CANADA

CAUTION AGAINST FUSE REPLACEMENT

FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND SAME RATING FUSE IN ACCORDANCE WITH THE FUSE SYMBOL LABEL.

The following is the indication of the fuse symbol label which is affixed adjacent to the fuse in the equipment.

* Example

This symbol indicates Fast Operating Type 2A, 250V Fuse.

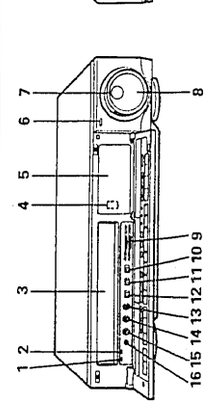
COMPARISON WITH PREVIOUS MODEL

	ITEM		VT-S751A	VT-S730A
FEATURES	REC /PLAY SYSTEM		S-VHS/VHS	S-VHS/VHS
	COMB FILTER		TLL COMB FILTER	TLL COMB FILTER
	EDIT SWITCH		PROVIDED	PROVIDED
	Hi-Fi MIX		PROVIDED	PROVIDED
	SPECTRA SONIC (BASS BOOST)		PROVIDED (THEATER ⇔ MUSIC SWITCHABLE)	PROVIDED (THEATER ⇔ MUSIC SWITCHABLE)
	COLOR LEVEL CONTROL		PROVIDED	PROVIDED
	SHARPNESS CONTROL		PROVIDED	PROVIDED
	VIDEO DUB		PROVIDED	PROVIDED
	AUDIO DUB		PROVIDED	PROVIDED
	HIGH-SPEED SEARCH		PROVIDED	PROVIDED
	WARP SEARCH		PROVIDED	PROVIDED
	JOG/SHUTTLE ON VCR		PROVIDED (NON-LOCKING SHUTTLE)	PROVIDED (NON-LOCKING SHUTTLE)
	ASSEMBLE EDIT		PROVIDED (UP TO 8 PROGRAMS)	PROVIDED (UP TO 8 PROGRAMS)
	TITLE		PROVIDED (BY REMOTE CONTROL/ VCR FRONT PANEL)	PROVIDED (BY REMOTE CONTROL/ VCR FRONT PANEL)
	COUNTER GO-TO		PROVIDED (BY REMOTE CONTROL/ VCR FRONT PANEL)	PROVIDED (BY REMOTE CONTROL/ VCR FRONT PANEL)
	TAPE REMAINING DISPLAY		PROVIDED (WITH BAR GRAPHS)	PROVIDED (WITH BAR GRAPHS)
	LINEAR TIME COUNTER		PROVIDED	PROVIDED
	TV MONITOR		PROVIDED	PROVIDED
	TAPE RETURN		PROVIDED	PROVIDED
	BLANK SEARCH		NOT PROVIDED	PROVIDED
	REPEAT		PROVIDED	PROVIDED
	SYNCHRO IN/OUT JACKS		PROVIDED	PROVIDED
	AUTO TRACKING		PROVIDED	PROVIDED
	EXT. IN JACKS ON FRONT		LINE 1 / LINE 2 SWITCHABLE	LINE 1 / LINE 2 SWITCHABLE
	AUDIO OUTPUT CONTROL		PROVIDED (HEADPHONE VOLUME CONTROL)	PROVIDED (HEADPHONE VOLUME CONTROL)
	OFF TIMER		PROVIDED (UP TO 99 MINUTES)	PROVIDED (UP TO 99 MINUTES)
	TIMER REC PROGRAMMING		BY REMOTE CONTROL	BY REMOTE CONTROL
	CLOCK SETTING		BY REMOTE CONTROL	BY REMOTE CONTROL
	TIME CORRECTION		BY REMOTE CONTROL	BY REMOTE CONTROL
	VCR MODE SELECTION		PROVIDED (6 ITEMS)	PROVIDED (6 ITEMS)
	INDEX		PROVIDED	PROVIDED
	OSD COLOR BACKGROUND		PROVIDED (ONLY BLUE)	PROVIDED (ONLY BLUE)
	OSD COLOR BACKGROUND RELEASE		PROVIDED	PROVIDED
	TIMER REC SPEED SELECTION		PROVIDED	PROVIDED
	TIMER REC PROGRAMS		8 PROGRAMS / 1 YEAR	8 PROGRAMS / 1 YEAR
	AUTO DATE MEMO		PROVIDED (SELECTABLE WITH OSD)	PROVIDED (SELECTABLE WITH OSD)
	Hi-Fi TRACKING		PROVIDED	PROVIDED
	REMOTE CONTROLLER	MODEL	VT-RM751A	VT-RMS730A
		PROG. MEMO	8 PROGRAMS	8 PROGRAMS
CHASSIS	BASIC CHASSIS TYPE		ZF (FULL LOADING)	ZF (FULL LOADING)
	HALF LOADING MECHANISM		NOT NECESSARY	NOT NECESSARY
	HEADS ON CYLINDER		SX5 HEADS + Hi-Fi SP VIDEO REC/PLAY : 2 EP VIDEO REC/PLAY : 2 FLYING ERASE : 1 AUDIO REC/PLAY : 2	SX5 HEADS + Hi-Fi SP VIDEO REC/PLAY : 2 EP VIDEO REC/PLAY : 2 FLYING ERASE : 1 AUDIO REC/PLAY : 2
	AMORPHOUS HEAD		USED (FOR SP/EP VIDEO HEAD)	USED (FOR SP/EP VIDEO HEAD)
	HEAD CLEANING MECHANISM		PROVIDED	NOT PROVIDED

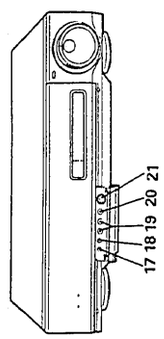
LIST OF MAIN CONTROL IC MODELS

ITEM	VT-S751A		VT-S730A	
VIDEO CIRCUIT				
VHS/S-VHS DISCRI.	HTS7152	(IC2201)	HTS7152	(IC2201)
CHROMA PROCESS	HA118108NT	(IC2202)	HA118108NT	(IC2202)
REC OSD MIXER	NJM2252N	(IC2301)	NJM2252N	(IC2301)
S-VIDEO OSD MIXER	NJM2252N	(IC2302)	NJM2252N	(IC2302)
LUMINANCE PROCESS	HT4995B	(IC2304)	HT4995B	(IC2304)
CCD 1H DELAY	CCD UNIT	(IC2306)	CCD UNIT	(IC2306)
TLL COMB FILTER	TEC1901B	(IC2307)	TEC1901B	(IC2307)
CHROMA LEVEL CONTROL	HTS7158S	(IC2308)	HTS7158S	(IC2308)
CORRELATION SW	HES8085A	(IC2309)	HES8085A	(IC2309)
EQUALIZER	NJM2258L	(IC2311)	NJM2258L	(IC2311)
SUB EMPHASIS	HN7153B	(IC2312)	HN7153B	(IC2312)
CHROMA NR	HES8089	(IC2313)	HES8089	(IC2313)
AUDIO CIRCUIT				
INPUT/OUTPUT SELECT	BA7730S	(IC501)	BA7730S	(IC501)
FM AUDIO PROCESS	XRA7700K	(IC502)	BA7700K1, XRA7700K	(IC502)
LINEAR AUDIO PROCESS	XRA7767A	(IC401)	BAA7767AS, XRA7767A	(IC401)
BASS BOOST	RC4558	(IC1531/1532)	RC4558	(IC1531/1532)
LINE SELECT SW	BU4053	(IC1511)	BU4053	(IC1511)
MPX DECODE CIRCUIT				
MPX DECODER	SBX1475-01	(IC1301)	SBX1475-01	(IC1301)
OSD CIRCUIT				
OSD μP	M50554-149SP	(IC1401)	M50554-149SP	(IC1401)
SYNC SEPA/SIGNAL DET	NJM2229S	(IC1402)	NJM2229S	(IC1402)
SERVO CIRCUIT				
SPEED/PHASE CONTROL	HD49741NT	(IC601)	HD49741NT	(IC601)
SWITCH	μPD4066C	(IC652)	μPD4066C	(IC652)
SOFT LANDING CONTROL	BA6303	(IC651)	BA6303	(IC651)
CYLINDER MOTOR DRIVER	XRA6459P1	(IC1651)	XRA6459P1	(IC1651)
SYSTEM CONTROL CIRCUIT				
SYSTEM CONTROL μP	HD404019A22S	(IC901)	HD404019A16S	(IC901)
LOADING MOTOR DRIVE	XRA6209U4	(IC902)	XRA6209U4	(IC902)
COMPARATOR	BX7716	(IC903)	BX7716	(IC903)
SUB μP	M50727-141SP	(IC971)	M50727-141SP	(IC971)
TRACKING CONTROL	HES8079	(IC1971)	HES8079	(IC1971)
METER CONTROL	BA6138L	(IC1501)	BA6138L	(IC1501)
TIMER CIRCUIT				
TIMER μP	M50959-225SP	(IC751)	M50959-225SP	(IC751)
EAROM	M6M80021	(IC752)	M6M80021	(IC752)
EDIT CIRCUIT				
EDIT μP	M50747-B04SP	(IC671)	M50747-B04SP	(IC671)
REGULATOR CIRCUIT				
MULTI REGULATOR	STK7271	(IC851)	STK7271	(IC851)

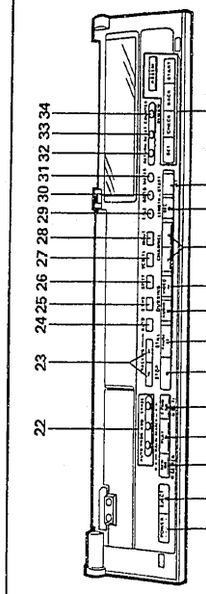
CONTROLS AND FEATURES



1. **POWER INDICATOR**
   Will light when the power is turned on.
2. **TAPE-IN INDICATOR**
   Lights when cassette is loaded in the compartment.
3. **CASSETTE COMPARTMENT**
   Insert a cassette in through a door, and loading will be completed automatically.
   Note: Power is turned on automatically when the cassette is loaded.
4. **INFRARED RAY RECEIVING SECTION**
   Receives the infrared ray from remote control unit.
5. **DISPLAY**
6. **DOOR OPEN BUTTON**
   Press to open door.
7. **SHUTTLE RING**
   During play, turn this ring to speed up or slow down playback speed at a smooth variable rate for everything from slow motion to forward search. Removing the hand from the ring restores a still picture.
8. **JOG DIAL**
   Every turn of the jog dial to a click position during still play moves the tape forward one frame at a time.
9. **RECORDING LEVEL CONTROLS**
   Set these controls to a reading of 5 (center click position) normally. The recording level is automatically adjusted to an optimum level. Set the controls if you want to adjust the recording level manually.
10. **AUDIO MIX SWITCH**
    Normally set it to off. When different sounds are recorded on the Hi-Fi and linear tracks, set this switch to on; you can hear both sounds at the same time.
11. **EDIT SWITCH**
    Set this switch to on during playback to emphasize outlines in dubbing. Will not work in modes other than playback.
12. **SPECTRA SONIC SWITCH**
    Turn this switch to on during playback or TV viewing for more powerful sound with emphasized bass.
13. **COLOR CONTROL**
    Adjusts color depth during playback. Normally set it to center click position. COLOR control works only in playback.

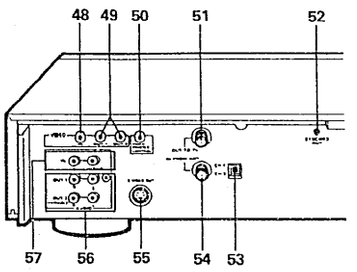


14. **SHARPNESS CONTROL**
    Used when playing a tape. Adjust for best picture.
15. **PHONES LEVEL CONTROL**
    For adjusting headphone volume. Turning this knob also adjusts output from audio output jack 2.
16. **PHONES SOCKET**
    Plug in a stereo headphone for private listening.
17. **SYNCHRO IN JACK**
    Connect the pause cable of a video camera here. Starting and stopping recording can be controlled by operating the start/stop button on the camera. To synchro edit, connect this jack to the other VCR's SYNCHRO OUT jack.
18. **MIC JACK**
    Plugs in a microphone for audio dubbing.
19. **AUDIO IN**
    Receive audio signals from a stereo system or another VCR. AUDIO IN (L) handles the left-channel stereo sound or monaural sound. If you connect an audio source to only AUDIO IN (L), the same sound is recorded on Hi-Fi tracks (L) and (R) in monaural.
20. **VIDEO IN**
    Receives video signal from a video camera or another VCR.
21. **S VIDEO IN JACK**
    Connect this jack and S VIDEO OUT jack of another VCR or camera using an S connector cable.
22. **CHANNEL PROGRAMMING CONTROLS**
    Program channels for channel up and down selection with these controls.
23. **TRACKING CONTROL BUTTONS**
    To minimize noise in playback. May also be used during visual search to move the noise bars up or down on the screen.
24. **AUTO TRACKING BUTTON**
    When playback is started, the auto tracking function operates normally if this button is not pressed. When this button is pressed after tracking has been adjusted manually, auto tracking operates again.



25. **S-VHS BUTTON**
    Use to select S-VHS or normal VHS for recording. It has no effect during playback. If you select S-VHS ON, the S-VHS indicator lights in the VCR's display.
26. **TAPE SPEED SELECT BUTTON**
    Recording time using Cassette tape T-160:
    EP: 8 hours SP: 2.6 hours
    Notes:
    - Playback speed automatically corresponds with recorded speed.
    - This VCR cannot record in LP mode, but can play LP recorded tapes.
27. **VCR/TV SELECT BUTTON**
    Selects the signal to be viewed.
    The "VCR" appears for about 5 seconds when the unit is in VCR mode and the signal received by the VCR is displayed on the TV screen. With the "TV" selected ("TV" appears for about 5 seconds), the broadcast signal is received directly by your TV set. When the VCR power is turned off, the VCR automatically switches to "TV".
28. **INPUT SELECT BUTTON**
    Press to select tuner position to record or view an off-the-air TV program (through the VCR's built-in tuner). "SC" position to record a program which being transmitted simultaneously by television and radio broadcast stations, the "L1" position to record or view the program input through the video and audio line input jacks on the rear of the VCR or the "L2" position to record or view the program input through the video and audio line input jacks on the front of the VCR.
29. **TITLE BUTTON**
    Use to create titles.
30. **GO-TO BUTTON**
    Use linear time counter to move tape so many minutes forward or backward from the present position. See page 31 for details.
31. **METER BUTTON**
    Press METER button to turn level meter on or off and to adjust Hi-Fi sound tracking.
32. **RETURN BUTTON**
    Press RETURN button to bring the tape back to the position where the linear time counter reads "0:00.00".
33. **RESET/T-160 BUTTON**
    Resets linear time counter to "0:00.00" when the linear time counter is displayed and automatically compensates the Tape Remaining display for using T-160 tapes when Tape Remaining mode is selected.
34. **COUNTER/REMAIN SELECT BUTTON**
    The VCR display changes in the order clock, linear time counter, tape remaining and back to clock each time this button is pressed.
35. **ASSEMBLE EDIT BUTTONS**
    Use these buttons to create an edit program during "Auto Assemble Edit" and "Synchro Edit". See page 48 for details.
36. **IRT START BUTTON**
    IRT allows unattended recording without programming the timer.
37. **RECORD BUTTON**
    Press to start recording.
38. **CHANNEL SELECT BUTTONS**
    Select the channels you wish to view or to record by pressing these buttons.
39. **VIDEO DUBBING BUTTON**
    Turns the video dubbing features on. To turn this feature off, press STOP button.
40. **AUDIO DUBBING BUTTON**
    Turns the audio dubbing features on. To turn this feature off, press STOP button.
41. **PAUSE/STILL BUTTON**
    Press to pause during recording or playback.
42. **STOP BUTTON**
    Press to stop tape. The STOP button must be pressed between "RECORD" and any other operation.
43. **FAST FORWARD/VISUAL SEARCH BUTTON**
    Press to activate fast forward.
    Press this button during playback, and forward playback picture at high speed can be seen.
44. **PLAY BUTTON**
    Press to start play.
    Note: When the cassette (with erase prevention tab removed) is loaded, playback starts automatically.

CONTROLS AND FEATURES (Continued)



45. REWIND/VISUAL SEARCH BUTTON
Press to start rewind.
Press this button during playback, and reverse playback picture at high speed can be seen.

46. EJECT BUTTON
When this button is pressed in modes other than recording, the tape stops, and the cassette is ejected.

47. POWER BUTTON
Turn system power on and off.

48. VIDEO IN
Receives video signal from a video camera or another VCR.

49. VIDEO OUT
For connection to monitor TV.

50. VIDEO PRINTER CONTROL JACK
Connect this jack to the PRINTER CONTROL jack on the VY-15A Printer (optional accessory) for high-clarity picture print-outs.

51. ANTENNA OUTPUT
Connect this terminal to the antenna terminal on the back of the TV.

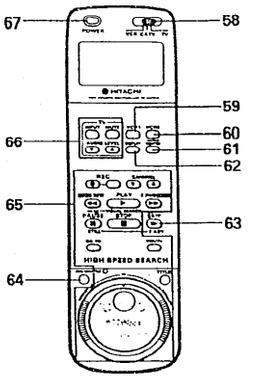
52. SYNCHRO OUT JACK
Connect the SYNCHRO OUT jack to the SYNCHRO IN jack of the recording VCR in order to synchro edit with this VCR in play mode.

53. RF CONVERTER SWITCH
Set this switch to whichever channel (CH3 or CH4) is unused in your area.

54. ANTENNA INPUT
Connect the UHF and/or VHF antenna to this terminal.

55. S VIDEO OUT
Connect this jack and the S VIDEO IN jack of a TV to view pictures with better quality.

56. AUDIO OUT
For a connection to a monitor or another VCR.
Output from AUDIO OUT 2 can be varied by the front panel's PHONES LEVEL control.



57. AUDIO IN
Receive audio signals from a stereo system or another VCR. AUDIO IN (L) handles the left-channel stereo sound or monaural sound. If you connect an audio source to only AUDIO IN (L), the same sound is recorded on Hi-Fi tracks (L) and (R) in monaural.

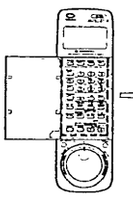
58. VCR/CATV/TV SELECT SWITCH
VCR: Select this position when using the remote control to operate the VCR.
CATV: Select this position to operate the cable converter.
TV: Select this position to operate the TV.

59. VCR1 BUTTON
If "VCR 1" is not displayed in the remote control's display, press this button to operate the VCR using the remote control provided and then press the button which corresponds to the function you want.

60. VCR2 BUTTON
Press this button when using another Hitachi VCR and operating the remote control provided to control the two VCRs.

61. AUDIO MONITOR BUTTON
For audio selection during playback. Press AUDIO MONITOR button to change audio from Hi-Fi to Linear and back again. Normally, select Hi-Fi audio. When Hi-Fi audio is selected, [L] and [R] on the level meter will light.

62. DISPLAY BUTTON
1st Press .... Calls up the mode display on TV screen.
2nd Press (before display disappears) ... Erases the display, leaving the display at the bottom of the screen as it is.
3rd Press .... Defeats the display function. Useful to prevent the On-screen display recording.



63. SKIP/F.ADV BUTTON
Press this button during playback for forward high-speed search that lasts for about 30-seconds of playing time, then goes back to normal play mode. Press this button during still playback to advance the picture by one frame.

64. JOG/SHUTTLE ON/OFF BUTTON
Press this button to make the lamp above the button light when using the jog/shuttle on the remote control. The lamp goes out when the button is pressed again. When the lamp is off, you cannot operate the jog/shuttle on the remote control.

65. VCR CONTROL BUTTONS
These buttons (except for "REC" buttons) function same as the buttons on your VCR.
Note: The REC buttons must be pressed simultaneously to start recording.

66. TV CONTROL BUTTONS
Used for controlling the TV.

67. POWER BUTTON
Turn system power on and off.

68. CORRECT BUTTON
Used for programming the timer.

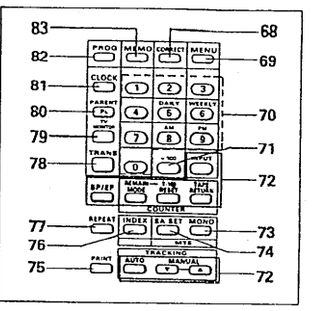
69. MENU BUTTON
Use MENU button to set the clock or program timer, to check or cancel timer programming, to operate the off-timer function, or to change VCR modes.

70. NUMBER BUTTONS "0" THROUGH "9"
Select any channel (whether or not it is in the "Tuner Scan List") by pressing two buttons. (Press "0" and then "8" for channel 8.) The number buttons are also used for setting the clock and programming the timer.

71. 100 BUTTON
Used to select TV or CATV channels.
Press "100", "2", "3" in this order to select channel 123.
Press "100", "0" and "5" for channel 105.

72. VCR CONTROL BUTTONS
These buttons function same as the buttons on your VCR.

73. MONO BUTTON
When a stereo broadcast is received but the stereo signal is noisy from a weak signal station, for example, press the button to turn on monaural mode. The audio you receive will be monaural. Monaural reception may be better than a noisy stereo signal. Normally press this button to turn off the monaural mode.



74. SAP SET (Second Audio Program) BUTTON
Press this button to turn on "SA SET" indicator on the TV screen to record the SA (Second Audio Program) broadcast. Normally press the button again to turn off the "SA SET" indicator on the TV screen.

75. PRINT BUTTON
If a video printer (optional accessory) is connected, press PRINT button to control the printer.

76. INDEX BUTTON
Activates the Program Index System. An on-screen display appears on the TV prompting you to enter a program number.

77. REPEAT BUTTON
Press to repeat play.

78. TRANS BUTTON
Press TRANS button to transmit the programmed information to the VCR.

79. TV MONITOR BUTTON
Press TV MONITOR button to view TV program during playback. To return to normal play viewing, press TV MONITOR button once more.

80. PL (Parent Lock) BUTTON
When this button and button "6" are pressed simultaneously, no button on the front panel of the VCR can be operated. This prevents children from operating the VCR without their parents approval.
To release the lock, press the PL button and button "6" simultaneously or press the POWER button of the remote control.

81. CLOCK BUTTON
Press CLOCK button to set clock.

82. PROG BUTTON
Used for programming the timer.

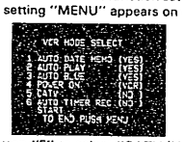
83. MEMO BUTTON
Press this button to store the information programmed for the timer in the memory of the remote control.

CHANNEL TUNING

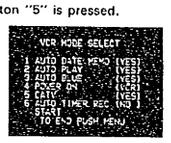
The automatic programming feature makes it easy and convenient to program the TV station into the tuner's memory.
Automatic programming is usually a "one-time" procedure, but you will need to repeat it if you move to a location that has different channels.
Note: The channels once you have preset will be held in memory of the VCR.

1. Turn on the power of both VCR and TV.
2. Be sure that the TV is set to the video channel (channel 3 or 4).
3. Aim the remote control unit at the receiver on the front panel of the VCR. Make sure that the VCR/CATV/TV select switch is set to "VCR".
4. Press the MENU button on the remote control unit. The "MENU", as illustrated, appears on the TV screen.
   NOTE: If the menu does not appear when the MENU button is pressed, press the VCR1 button and then the MENU button.

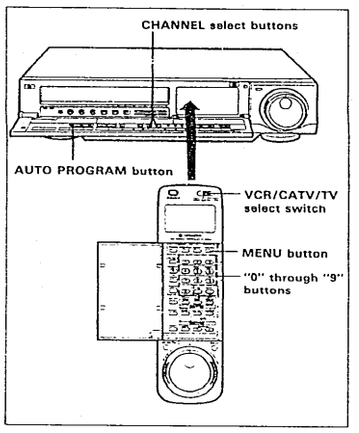
5. Press button "3" for VCR function setting. The VCR function setting "MENU" appears on the TV screen.



6. Press button "5" to select "CATV [YES] or [NO]". If your VCR is connected to a home antenna system, select "NO"; select "YES" when your VCR is connected to a cable antenna. Switching is performed between "YES" and "NO" on the TV screen every time button "5" is pressed.

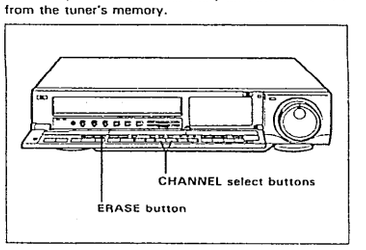


7. Press MENU button to return to TV screen.
8. Press "AUTO PROG" button on the VCR.
   The tuner will automatically cycle through all available channels in the area and place them in the tuner's memory. It takes about 2 ~ 3 minutes. The channel number will stop changing when the tuner is finished cycling. Programming is now completed. You can select the active channels by pressing the CHANNEL select buttons.



■ Eliminating unwanted preset channels

You may want to have only a few favorite channels in the tuner's memory so you can select them more quickly with the CHANNEL select button.
Occasionally automatic programming may include a vacant channel in the tuner's memory if there happened to be some sort of "noise" or "stray signal" on the channel when the tuner was programmed. This procedure explains how to delete any unwanted channels from the tuner's memory.



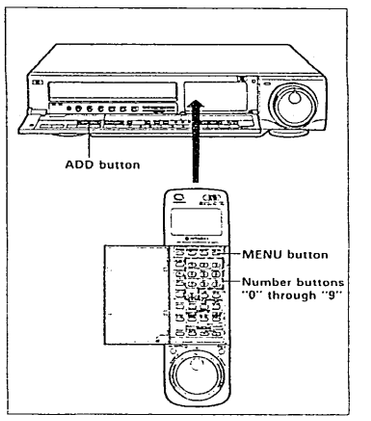
1. Press the CHANNEL select button until the unwanted channel is tuned.
2. Press the ERASE button.
3. Repeat steps 1 and 2 until all unwanted channels have been eliminated.

Note: To restore the erased channel, follow steps 1 through 6 of "Adding channels to the tuner's memory" at right.

NOTE: If you view and record one or more local UHF channels that your cable system does not offer, first, program the cable-TV channels. Then preset the desired UHF channels by following the "Adding channels to the tuner's memory" after selecting the "CATV [NO]".

■ Adding channels to the tuner's memory

You may have deleted a channel from the tuner's memory and want to put it back. Occasionally automatic programming may "miss" an active channel because the signal is very weak or because the channel happened to be "off the air" when the tuner was programmed. Use this procedure to add any channel in the memory.

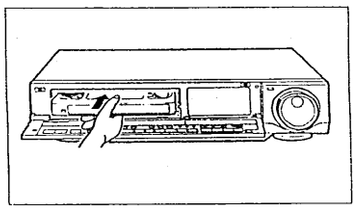


1. Follow steps 1 through 6 on page 20, and select CATV [YES] or [NO] as desired.
2. Press MENU button to return to TV screen.
3. Press two buttons "0" through "9" on the remote control unit to select the desired channel. (Press "0" and then "8" for channel 8.)
4. Press the ADD button.
5. Repeat steps 3 and 4 for additionally desired channel(s) in your area. Now both Normal TV channels and CATV channels have been preset.
6. Select CATV [YES] or [NO] whichever you desire.

Your VCR is capable of receiving "off-the-air" TV channels (VHF 02 — 13, UHF 14 — 69) and CATV channels 01 — 125, a total of 181 channels*.
* You can receive channels 02 — 13 on both "off-the-air" and "cable" channels. Therefore, the total number of channels including "off-the-air" and "cable" channels is 181 channels (12 + 56 + 125 — 12 = 181).

TIMER RECORDING

The programmable electronic clock/timer permits the unattended recording of up to 8 preselected programs, including one program on the same day of each week or one program at the same time every day.
It can be preset up to 1 year in advance to record your favorite programs. It turns the unit on and off and changes channels automatically.



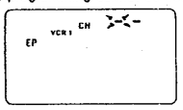
1. Insert the Cassette.
2. Set the program timer.
   "START (ON) TIME", "STOP (OFF) TIME", "DAY" etc. See below.
3. Turn power off. Now recording will begin automatically at the start time.

Notes:
- It is not necessary to press RECORD button.
- The "TAPE" flashes to warn that recording will not occur because cassette has not been inserted. If the safety tab on the cassette has been removed, the VCR will automatically eject the cassette when placed in the timer mode.

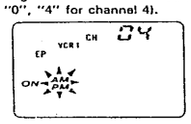
■ Programming the timer for unattended recording
For unattended recording the timer needs to know what day to make the recording, the time to start, the time to stop, and the channel to be recorded.

Things to know before starting
- You can correct an error in the program any time before the last step by pressing CORRECT button repeatedly until the digit to be corrected becomes flashing and then enter the correct digit.
- A one minute halt in programming will cause all programmed steps to be erased. Start from the beginning and reprogram.
- The VCR/CATV/TV select switch must be set to "VCR" for programming the timer.

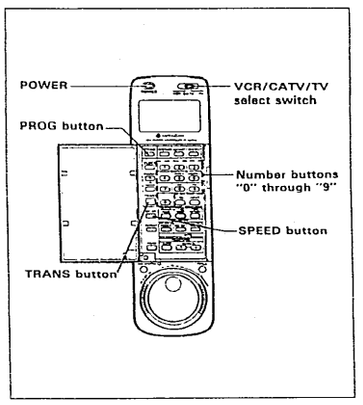
1. Press PROG button once.
   Note: If, when the present time is not being displayed on the remote control unit the PROG button is pressed, programming cannot be done.



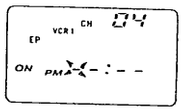
2. Press two digits for the channel to be recorded (for example, "0", "4" for channel 4).



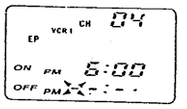
Note: For single-digit channel numbers, first press "0" and then the channel number "1" through "9".



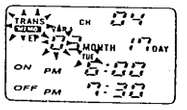
3. Press "8" for AM or "9" for PM.



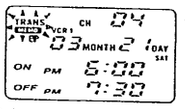
4. Press four digits, two for the hour and two more for a minute (for example, "0", "6", "0", "0" for 6:00).



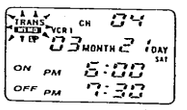
5. Press four digits, two for the hour and two more for the minute (for example, "0", "7", "3", "0" for 7:30).



6. If you want to start recording on a future date, press four digits (two for the month and two for the day) (for example "0", "3", "2", "1" for begin recording on March 21). The day of the week is displayed automatically.
   Note: If you want recording to start on the current day, skip step 6.



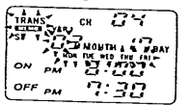
7. Press SPEED button to select SP, EP or AUTO modes. Selecting AUTO enables automatic recording.



8. Aim the remote control unit at the receiver on the front panel of the VCR and press the TRANS button.
   Note: If the TV is turned on, the programmed information will be displayed on the TV screen for several seconds.

9. Turn off the power of the VCR.
   Now the VCR will begin recording at the time you selected.

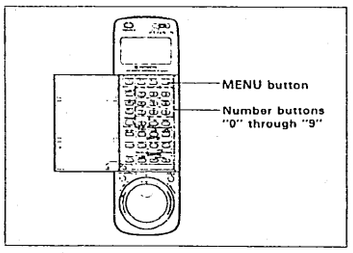
- **To record at the same time Monday through Friday**
  Press button "5" (DAILY) after setting the stop time in step 5. The "MON ~ FRI" will be displayed. Then follow steps 7 through 9.



- **To record on a specified day at the same time each week**
  After setting the stop time in step 5, press button "6" (WEEKLY) repeatedly to set the day of the week and then program the start date. The figure below shows that Monday in each week has been selected.

OFF TIMER

OFF TIMER permits to turn off the VCR power automatically. Setting OFF TIMER to a time no more than 99 minutes from now automatically cuts power when that time arrives.



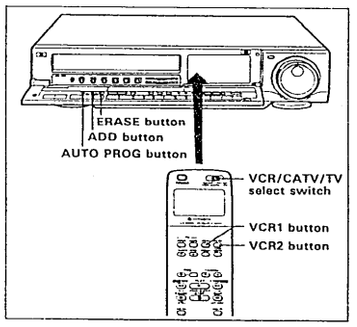
1. Press MENU button.
   The menu shown appears on the TV screen.

2. Press "2" button.
   OFF TIMER appears on the TV screen.

3. Set OFF TIMER by pressing buttons "0" through "9".
   To turn VCR power off in 50 minutes, for example, first press "5", then press "0".

4. Press MENU button.
   SLEEP appears on the VCR's display and 50 minutes later power goes off.

VCR1/VCR2 SELECTION



If the operation buttons on the remote control unit are pressed in this case, the two VCRs must operate in different ways. Therefore it must be possible to discriminate between VCR1 and VCR2. Since this VCR has been set to "VCR1" for receiving a signal from the remote control when shipped from the factory, set the VCR to "VCR2"by the following procedure.

1. Turn the VCR power off and press the AUTO PROG button.
   "VCR-1" will appear in the display.
2. Press the ERASE button. The display will switch to "VCR-2".

Now this VCR can receive signals from the remote control unit when the "VCR2" is displayed in the remote control's display.
To operate this VCR, press the VCR2 button first and to operate another VCR, press the VCR1 button first, then press VCR control buttons.

- To return this VCR to "VCR1" follow steps below.
  1. Turn the VCR power off and press the AUTO PROG button.
  2. Press the ADD button. "VCR-1" will appear in the display. Now, this VCR has been returned to "VCR1".

Note: This remote control unit can operate most but not all Hitachi VCRs (cannot operate the VT-9700A, 9710A, 15A and 6800A). When Hitachi VCRs other than this are controlled by the remote control unit, timer programming cannot be done using this remote control.

HOW TO OPERATE YOUR TV OR CABLE CONVERTER BY USING THE REMOTE CONTROL UNIT

This remote control unit is designed to operate 14 different types of TV's and 8 different types of cable converters. You must first program the remote control unit to match the remote system in your TV or cable converter.

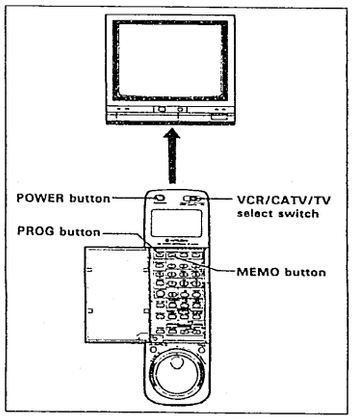
Programming the remote control for TV set

1. Install the batteries in the remote control unit.
2. Turn on your TV.
3. Set the VCR/CATV/TV select switch to TV. Then press PROG button. "CODE 01" appears on the remote control display.
4. Point the remote control toward your TV.
5. Press POWER button on the remote control.
   If remote control can turn the TV's power on and off, then it can operate the TV.
6. If the remote control cannot turn power on off, press MEMO button again to display "CODE 02". Then press POWER button. If that doesn't work, repeat the process trying "CODE 03", "CODE 04", and so on to "CODE 14".

Programming the Remote Control for Cable Converter

1. Install the batteries in the remote control unit.
2. Turn on your Cable Converter.
3. Set the VCR/CATV/TV select switch to CATV. Then press PROG button "CODE 01" appears on the remote control display.
4. Point the remote control toward your Cable Converter.
5. Press POWER button on the remote control. If remote control can turn the Cable Converter's power on and off, then it can operate the Cable Converter.
6. If the remote control can not turn power on and off, press MEMO button again to display "CODE 02". Then press POWER button. If that doesn't work repeat the process trying "CODE 03" "CODE 04", and so on to "CODE 08".

Notes:
- If your TV or Cable Converter does not respond to any of the above procedures, the TV or Cable Converter cannot be controlled by this remote control unit.
- You will only have to program your remote control to match your TV or Cable Converter once. It will remember what codes matchs your TV or Cable Converter until you replace the batteries.
- Whenever you install or replace batteries in the remote control, you must program the remote control to match the remote system in your TV or Cable Converter.
- When operating the TV or Cable Converter, first set the VCR/CATV/TV select switch to "TV" or "CATV", and then press the button which corresponds to the TV or Cable Converter function you want.



- When you want to operate the VCR with this remote control after operating the TV or Cable Converter, first set the VCR/CATV/TV select switch to VCR and then press the button which corresponds to the VCR function you want.

Types of TV / Buttons on remote control	No. 1 Hitachi	No. 2 RCA	No. 3 Zenith	No. 4 Sony	No. 5 Magnabox	No. 6 Sanyo	No. 7 Gold Star 1	No. 8 Toshiba	No. 9 Gold Star 2	No. 10 NEC	No. 11 Panasonic
POWER	POWER	POWER	POWER	POWER	POWER	POWER	POWER	POWER	POWER	POWER	POWER
1	1	1	1	1	1	1	1	1	A	1	1
2	2	2	2	2	2	2	2	2	B	2	2
3	3	3	3	3	3	3	3	3	C	3	3
4	4	4	4	4	4	4	4	4	D	4	4
5	5	5	5	5	5	5	5	5	E	5	5
6	6	6	6	6	6	6	6	6	F	6	6
7	7	7	7	7	7	7	7	7	G	7	7
8	8	8	8	8	8	8	8	8	H	8	8
9	9	9	9	9	9	9	9	9	I	9	9
0	0	0	0	0	0	0	0	0	K	0	0
CHANNEL▲	CHANNEL▲	CHANNEL▲	CHANNEL▲	CHANNEL▲	CHANNEL▲	CHANNEL▲	CHANNEL▲	CHANNEL▲	L	CHANNEL▲	CHANNEL▲
CHANNEL▼	CHANNEL▼	CHANNEL▼	CHANNEL▼	CHANNEL▼	CHANNEL▼	CHANNEL▼	CHANNEL▼	CHANNEL▼	J	CHANNEL▼	CHANNEL▼
AUDIO LEVEL▲	VOLUME▲	VOLUME▲	VOLUME▲	VOLUME▲	VOLUME▲	VOLUME▲	VOLUME▲	VOLUME▲	VOLUME▲	VOLUME▲	VOLUME▲
AUDIO LEVEL▼	VOLUME▼	VOLUME▼	VOLUME▼	VOLUME▼	VOLUME▼	VOLUME▼	VOLUME▼	VOLUME▼	VOLUME▼	VOLUME▼	VOLUME▼
MUTE	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE
DISPLAY	DISPLAY	DISPLAY	--	DISPLAY	DISPLAY	—	—	—	—	—	RECALL
100	100	100	ENTER	ENTER	100	100	—	100	—	—	—
PREV CH	PREV CH	PREV CH	PREV CH	—	PREV CH	--	—	—	—	PREV CH	PREV CH
INPUT	AVX	—	—	—	—	—	—	—	—	—	—

No. 12 Mitsubishi	No. 13 JVC	No. 14 Sharp
POWER	POWER	POWER
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
0	0	0
CHANNEL▲	CHANNEL▲	CHANNEL▲
CHANNEL▼	CHANNEL▼	CHANNEL▼
VOLUME▲	VOLUME▲	VOLUME▲
VOLUME▼	VOLUME▼	VOLUME▼
MUTE	MUTE	MUTE
DISPLAY	DISPLAY	—
—	MENU	—
PREV CH	PREV CH	PREV CH
—	—	—

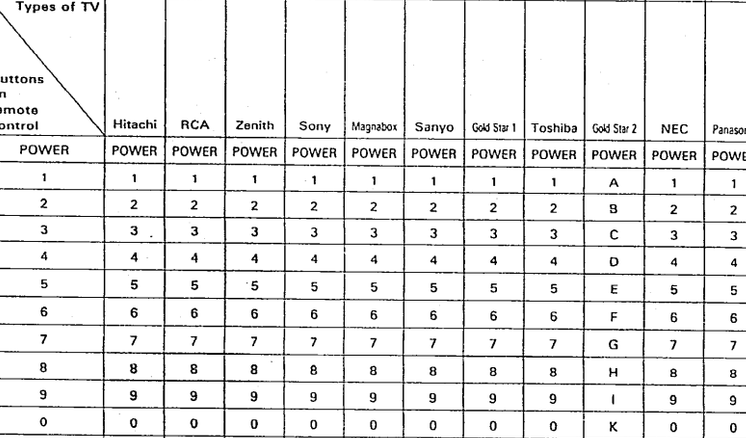
Types of Cable Converter / Buttons on remote control	No. 1 Jerrold 1	No. 2 Jerrold 2	No. 3 Jerrold 3	No. 4 Hamlin	No. 5 Zenith	No. 6 Scientific Atlanta	No. 7 Pioneer	No. 8 Philips
POWER	POWER	POWER	POWER	POWER	POWER	POWER	POWER	POWER
1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9
0	0	0	0	0	0	0	0	0
CHANNEL▲	CHANNEL▲	CHANNEL▲	CHANNEL▲	CHANNEL▲	CHANNEL▲	CHANNEL▲	CHANNEL▲	CHANNEL▲
CHANNEL▼	CHANNEL▼	CHANNEL▼	CHANNEL▼	CHANNEL▼	CHANNEL▼	CHANNEL▼	CHANNEL▼	CHANNEL▼
100	—	—	ENT	—	ENT	ENT	ENT	ENT
AUDIO LEVEL▲	—	—	—	—	—	—	—	VOL▲
AUDIO LEVEL▼	—	—	—	—	—	—	—	VOL▼
MUTE	—	—	—	—	—	—	—	MUTE

IMPORTANT NOTICE:

While Hitachi's remote control unit is compatible with most television sets or Cable Converters, it is possible that the remote control unit will not work with your TV set or Cable Converter.

AUTO ASSEMBLE EDIT

If the part to be edited has been programmed, the playback VCR automatically controls the record VCR for editing.

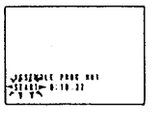


Preparations

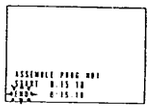
- Connect playback VCR (this VCR) to record VCR and TV.
- Prepare the playback VCR (this VCR) as follows.
  - Insert recorded cassette.
  - Turn EDIT switch on.
  - Set mode display to OFF.
  - Play tape a little to adjust tracking.
- Prepare the record VCR as follows.
  - Insert a cassette with record prevention tab in place. Run tape to the point where editing will start. Press STOP button.
  - Press the INPUT select button to select the external input (L1 or L2).
  - Set the tape speed and recording level.
- Turn TV power on. Select channel for VCR use.

(Operating Playback VCR (this VCR))

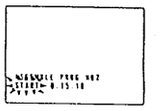
1. Press ASSEMBLE button.
   - Enables the assemble edit mode. The record VCR automatically enters the pause mode.
   - "ASSEM" appears in the VCR display.
   - The display below appears on the TV screen.



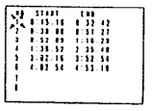
   - "START" flashes on and off. Enters the state of waiting to set the program 1 start point.
2. Search for program 1 start point.
   - Play the tape and search for start of program 1. (Jog/shuttle makes the search for the exact start point easy.)
   - When the start point appears, press SET button.



   - The start point is now programmed. "END" flashes on and off to indicate that the VCR is waiting for the setting of program 1's end point.
3. Search for the end of program 1.
   - Using the same procedures as in step 2, search for the exact end of program 1, then press SET button.
   - Use the jog/shuttle for easier searching of end point. (Difficult to get accurate editing by using STOP and then F.FWD or REWIND button.)



   - The end point of program 1 is now programmed. "START" is now flashing on and off to show that the VCR is waiting for the setting of program 2's start point.
4. Now set the start and end points for programs 2 to 8 in the same way.
   - Perform the same procedures as in steps 2 and 3 to search for the start and end points and then set them by pressing SET button.
5. When setting of all programs is complete, press CHECK button to check program contents.
   - Let the tape continue running, do not press STOP. If stopped, editing cannot be accurate.
   - Displays programmed contents. Check to make sure contents are correct.



   - To partially correct contents, see page 50.
   - If contents are correct, perform operations in step 6.
   - If programs up to 8 have been set, the programmed contents will be displayed automatically.

(Operating Record VCR)

6. Press REC button at the point where editing on the record VCR will start.
   - The record VCR enters automatically record pause mode.
   - Check once more to make sure that all preparations for recording on the record VCR are complete.

(Operating Playback VCR (this VCR))

7. Press START button.
   - Editing starts. Playback VCR (this VCR) and record VCR each automatically operate as follows.

Playback VCR	Record VCR
1. Rewinds to a point slightly in front of the start for program 1, then starts playing the tape at a point about 10 seconds in front of the start point.	1. Pause is released at a point 1.5 to 3 seconds in front of the start point and recording begins.
2. When it reaches the end point, it feeds the tape to the next edit start point.	2. Recording pauses at the end point.
3. Play starts about 10 seconds in front of the start point.	3. Pause is released at a point 1.5 to 3 seconds in front of the start point and recording begins.

   - The operation above repeats up to the end of the programmed editing section, the play VCR then stops and the record VCR goes into record pause.
   - Press STOP button on the record VCR and then press ASSEMBLE button on the play VCR to release the editing mode.
   - When the cassettes are ejected or power is turned off, programmed contents are erased.

Display during auto assemble editing

- The play VCR starts play 10 seconds in front of the programmed start point. "EXECUTE" flahses on and off for about 2 seconds before start and then it goes out.

AUTO ASSEMBLE EDIT (Continued)

■ Cautions during auto-assemble editing

- When editing starts, the playback VCR starts playing at a point slightly before the start of the first program. This is why something should always be recorded about 30 seconds before the start point. (No signals have to be input, all that is needed is to press the REC button.)
- The message "PROG NO SET ERROR" may appear on the TV screen when editing starts. If that happens, the program displayed and subsequent programs will not be executed. Re-set the programs and then edit.
- Editing may operate incorrectly if there is an unrecorded section between the start point and a point about 30 seconds in front of it, or if the recording mode switches.
- Editing may be inaccurate if there is a 40 minute or more interval between programs, or if a program is less than 15 seconds long.
- Some VCR models for recording will stop if they are left in record pause mode for five minutes. Do not hold a VCR in record pause for five minutes.
- To record on a previously recorded tape, first record something for about 10 seconds in the section where the recording starts, at the new recording speed, then rewind to the start of recording.

■ If a mistake is made while setting a program

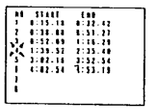
If a mistake is made during the setting of start and end points, correct it by the following steps.

1. Press BACK button.
   - Every press of the BACK button moves the programming procedures back one at a time. Go back to the step which is to be corrected, the one flashing on and off.
2. Correct program contents.
   - To correct the end point, for example, reprogram the end point using the procedures in step 3.
   - Reprogram any subsequent corrections.

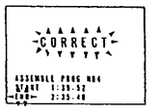
■ To correct part of programmed contents

After programmed contents have been checked by the steps in 5 on page 49, perform the following steps to change some of the contents. (Example: correct the end point of program 4).

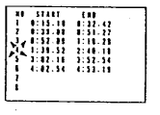
1. Press CHECK button.



   - Press CHECK button repeatedly until the program number which should be changed flashes.
2. Press BACK button



   - Press BACK button repeatedly until the section that can be changed flashes.
3. Correct program
   - Correct programs using the same steps as in 2 of "If a mistake is made while setting a program".

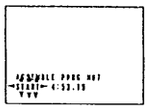


   - After finishing corrections, perform steps 6 and 7.

■ Adding programs after checking programmed contents

After checking the programmed contents, perform the following steps to input additional programs.

1. Press SET button.

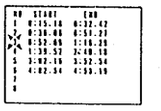


   - That enables the program setting mode, which automatically selects programs which have not yet set.
2. Set the program.
   - Perform steps 4 to 7.

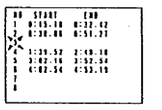
■ To erase some contents after programs have been input

After checking the programmed contents, perform the following steps to erase part of those contents.

1. Press CHECK button.
   - Press CHECK button repeatedly until the program number which should be changed flashes. (In this example, program 3 is flashing on and off.)



2. Press BACK button.
   - Press BACK button repeatedly until "START" flashes on and off. Then press BACK button again.



Program 3 is now erased. Perform steps 6 and 7.

DISASSEMBLY

1. NAMES AND LOCATIONS OF CIRCUIT BOARDS

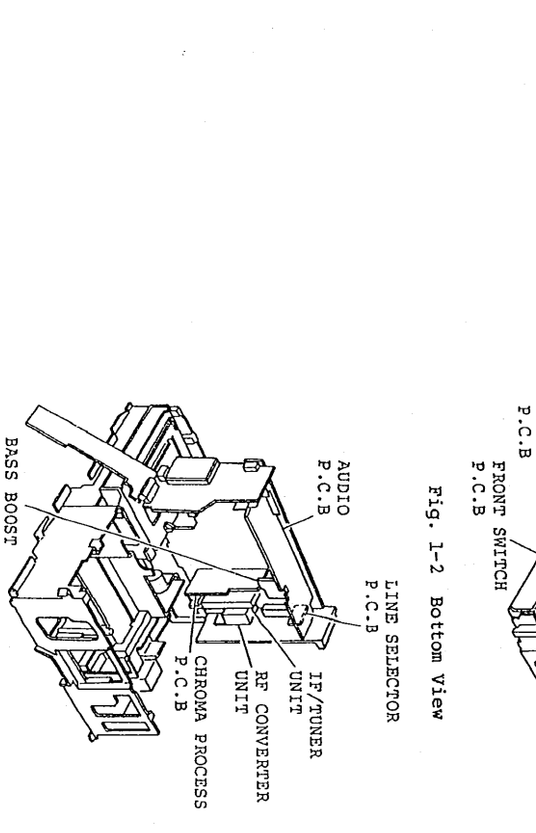


Fig. 1-1 Top View

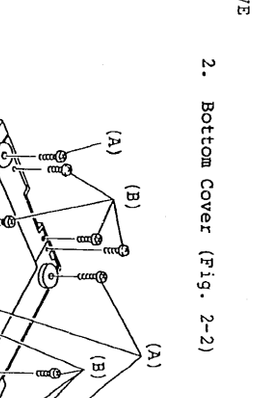


Fig. 1-2 Bottom View

Fig. 1-3 State with the SSJ P.C.B Opened

(Procedure when removing)
Remove the components in the order of letters (A, B, C ...) in the illustrations.

(Procedure when reinstalling)
Reinstall the components by the reverse procedure to removal when not otherwise specified.

2. CASE REMOVAL

1. Top Cover (Fig. 2-1)

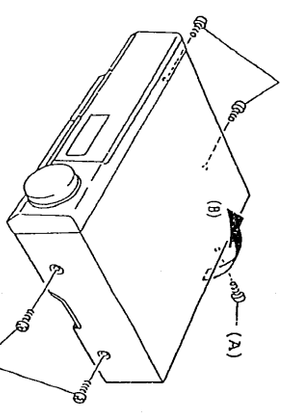


Fig. 2-1

2. Bottom Cover (Fig. 2-2)

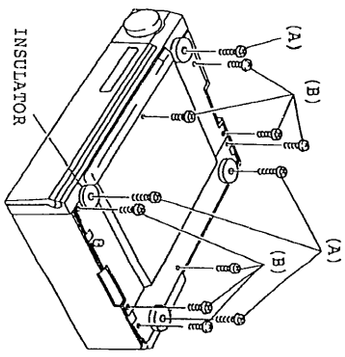
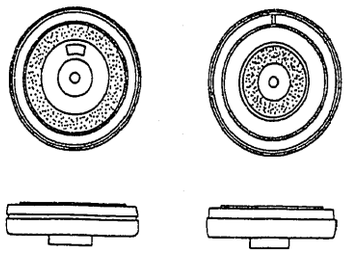


Fig. 2-2

(Caution during work)
Turn the insulators counterclockwise to remove them.

(Caution when reinstalling)
Be careful of the front and rear locations of the insulators. (See the figure below)

Turn the insulators clockwise until they strike the bottom cover and then fix them with screws.



- Front Insulator - - Rear Insulator -

3. **Front Panel** (Fig. 2-3)

Components to remove previously	Item
Top Cover	2-1
Bottom Cover	2-2

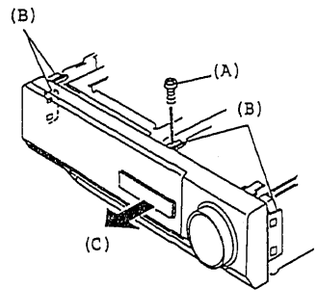


Fig. 2-3

(Caution during work)
The circuit board in the front panel and the circuit boards in the chassis are connected via connectors. Therefore, remove the front panel by pulling it at the right angles to the chassis.

(Caution when reinstalling)
Reinstall the front panel at the right angles to the chassis while taking care of the connectors (which connect the circuit boards).

4. **Front Door** (Fig. 2-4)

Components to remove previously	Item
Front Panel	2-3

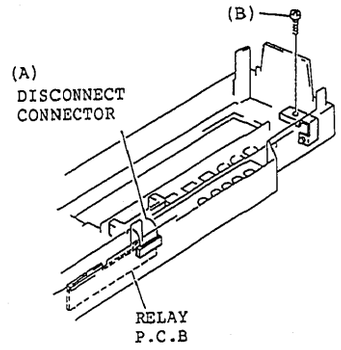


Fig. 2-4(a)

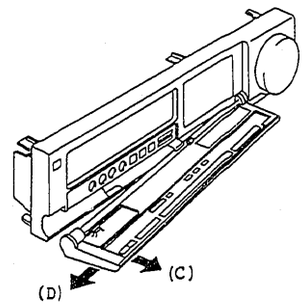


Fig. 2-4(b)

(Caution during work)
Be careful so as not to damage the front panel.

(Caution when reinstalling)
Pass the flexible connector through the hole in the bottom at the middle of the front panel (under the recording level control).

- Front Metal Panel Removal - (Fig. 2-5)

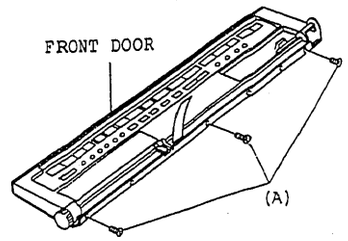


Fig. 2-5

- Front Door Damper/Door Switcher - (Fig. 2-6)

(Caution when reinstalling)
Reinstall the front door damper while placing the front door in the horizontal position.

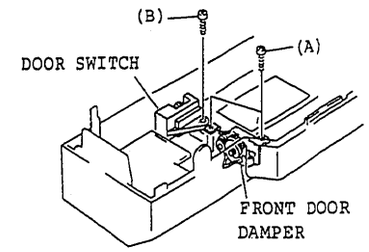


Fig. 2-6

5. **Front Jack Cover** (Fig. 2-7)

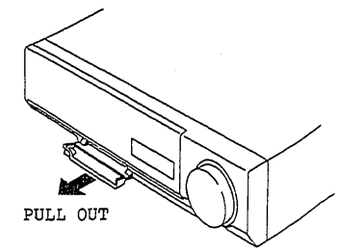
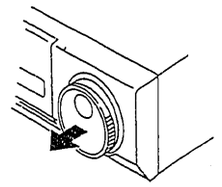


Fig. 2-7

6. **Jog/Shuttle Dial** (Fig. 2-8)



Hold the shuttle dial and pull it out to the front.

Fig. 2-8

Be sure to remove cases when servicing and checking the circuit boards. Top Cover (see item 2-1) Bottom Cover (see item 2-2) Front Panel (see item 2-3)

3. **CIRCUIT BOARD REMOVAL**

1. **Jog Dial Circuit Board** (Fig. 3-1)

(Before removing)
° Remove the jog/shuttle dial previously. (See item 2-6)

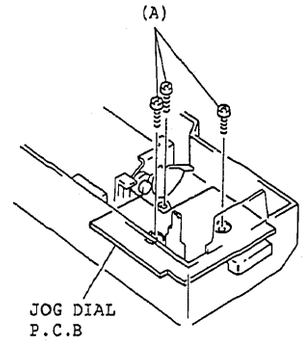


Fig. 3-1

2. **Relay Circuit Board** (Fig. 3-2)

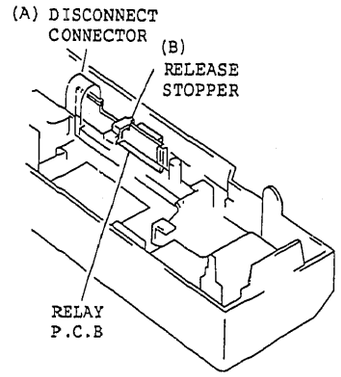


Fig. 3-2

3. **Front Switch Circuit Board** (Fig. 3-3)

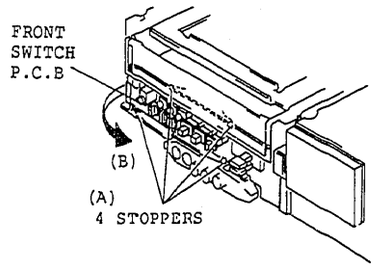


Fig. 3-3

4. **Timer Circuit Board** (Fig. 3-4)

(Before removing)
Open the front switch circuit board. (See item 3)

Release the tabs of the display holder from the circuit board.

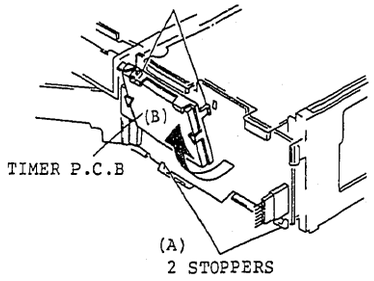


Fig. 3-4

(How to disconnect connectors between circuit boards)
Connectors between front switch and timer circuit boards

1) Open the front switch and timer circuit boards.
2) Set both circuit boards in the horizontal positions and pull out the front switch circuit board in the direction of arrow (A).

Connectors between timer and SSJ circuit boards

1) Open the timer circuit board to set it in the horizontal position.
2) Set the SSJ circuit boards in the horizontal position and pull out the timer circuit board in the direction of arrow (B).

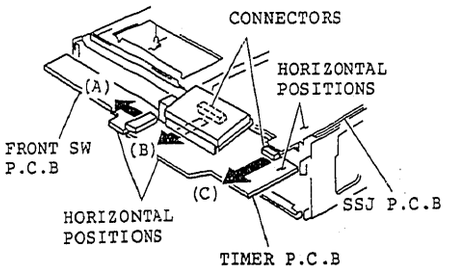


Fig. 3-5 Disconnecting the Connectors

5. SSJ Circuit Board (Fig. 3-6)

(Before removing)

1) Open the front switch circuit board. (See item 3-3)
2) Open the timer circuit board. (See item 3-4)

(Caution)
After removing the SSJ circuit board, set it to the service position shown on page 3-1.

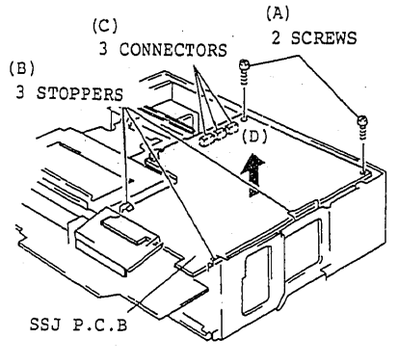


Fig. 3-6

(Rear Panel Removal)
While lifting the SSJ circuit board, remove one (1) screw on the rear panel an three (3) nylon rivets on the circuit board, and pull out the rear panel backwards.

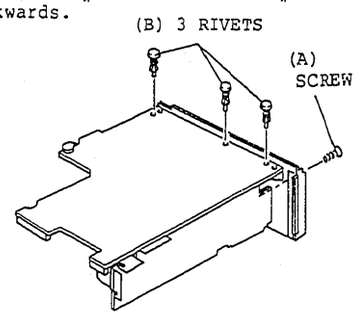


Fig. 3-7 Rear Panel Removal

6. Chroma Process and Audio Circuit Boards (Fig. 3-8)

(Before removing)

1) Remove the SSJ circuit board. (See item 3-5)
2) Remove the rear panel. (See item 3-5)

(Caution during work)

1) Unsoder the connectors from the solder side of the SSJ circuit board and then remove the circuit board.

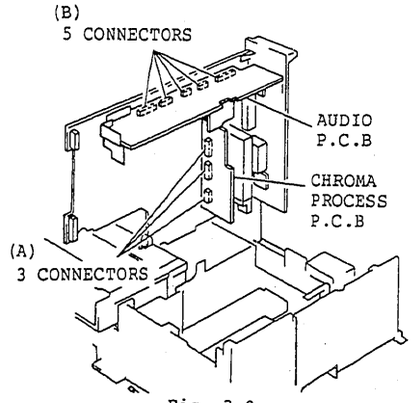


Fig. 3-8

7. Power Transformer and Regulator IC Circuit Boards (Fig. 3-9)

(Before removing)

1) Remove the rear piece previously.

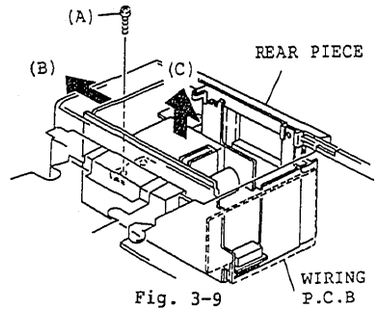


Fig. 3-9

8. Pre/Rec Amp Circuit Board (Fig. 3-10)

(Before removing)

1) Remove the shield cover on the front of the cylinder previously.

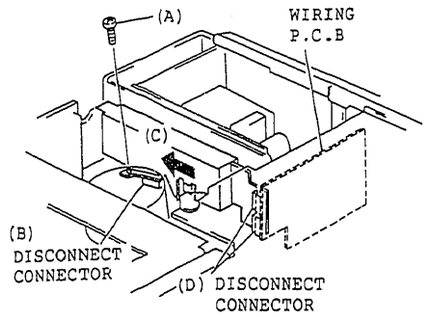


Fig. 3-10

9. Wiring circuit Board (Fig. 3-11)

Components to remove previously	Item
SSJ P.C.B	3-5
Power Trans. and REG. IC P.C.Bs	3-7
PRE/REC AMP P.C.B	3-8

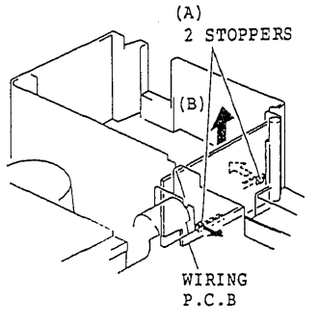


Fig. 3-11

10. Front Jack Circuit Board (Fig. 3-12)

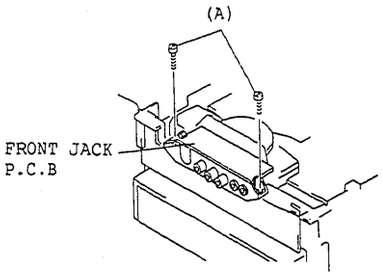


Fig. 3-12

11. YCJ Circuit Board (Fig. 3-13)

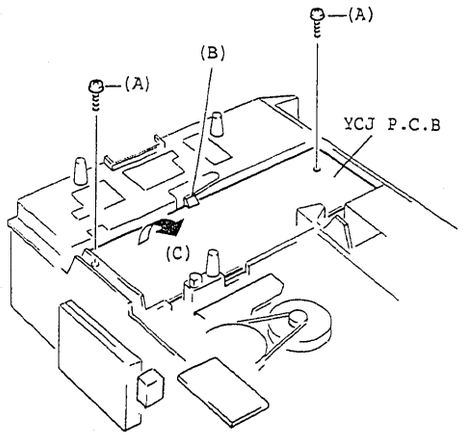


Fig. 3-13

12. Sensor/Motor Drive Circuit Board (Fig. 3-14)

(Before removing)

1) Remove the front jack circuit board. (See item 3-10)
2) Remove the take-up pulley. (See item 7-14)

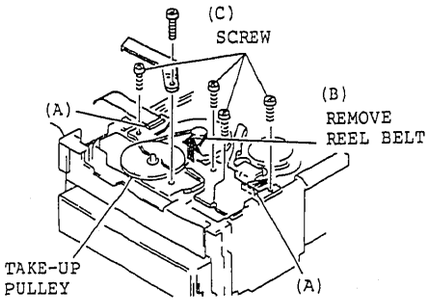


Fig. 3-14

4. IDENTIFICATIONS AND LOCATIONS OF MAIN MECHANICAL COMPONENTS

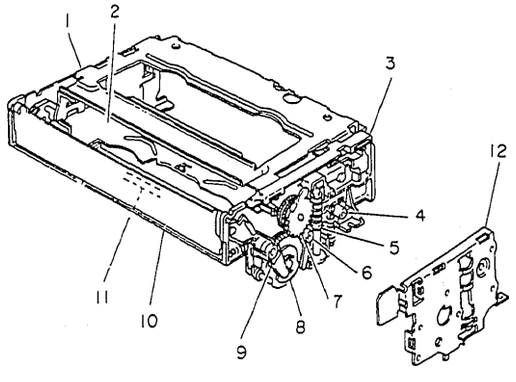


Fig. 4-1 Cassette Loading Mechanism

1. Chassis Holder
2. Cassette Holder
3. Gear Bracket
4. Switch Lever (B)
5. FL Worm Gear
6. Switch Lever (A)
7. Worm Wheel
8. Drive Gear
9. Door Arm
10. Front Holder
11. Shaft Pin
12. Side Chassis

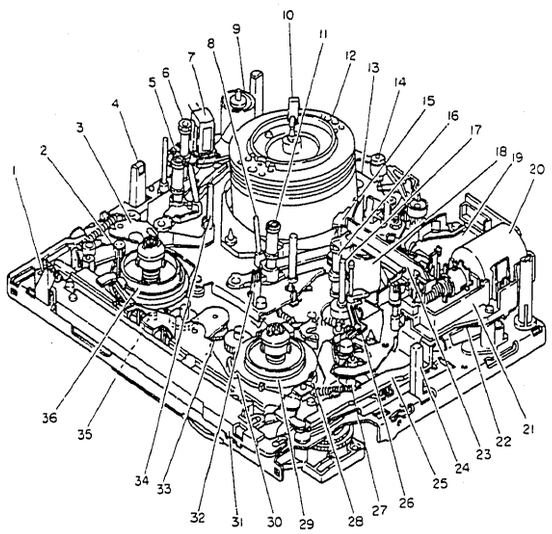


Fig. 4-2 Top View of Mechanism

1. Safety Arm
2. Tension Band
3. Tension Arm
4. Supply End Sensor
5. Supply Guide Roller
6. Supply Guide Pole
7. Full Erase (FE) Head
8. Inclined Guides
9. Impedance Roller
10. Ground Brush
11. Take-up Guide Roller
12. Cylinder (Video Heads)
13. Cylinder Motor Base
14. Auto Head Cleaning Mechanism
15. Audio/Control (A/C) Head
16. Take-up Guide Pole
17. Capstan Shaft
18. Pressure Roller
19. Mechanism State Switch
20. Loading Motor
21. Loading Motor Holder
22. Load Bracket Assembly
23. Cassette Lid Opener
24. Take-up End Sensor
25. Brake Link Arm
26. Drawer Pin
27. Pressure Roller Operation Arm
28. Take-up Brake
29. Take-up Reel Disk
30. Take-up Main Brake
31. Slider Block
32. End Lamp
33. Reel Drive Idler
34. Tension Pole
35. Supply Main Brake
36. Supply Reel Disk

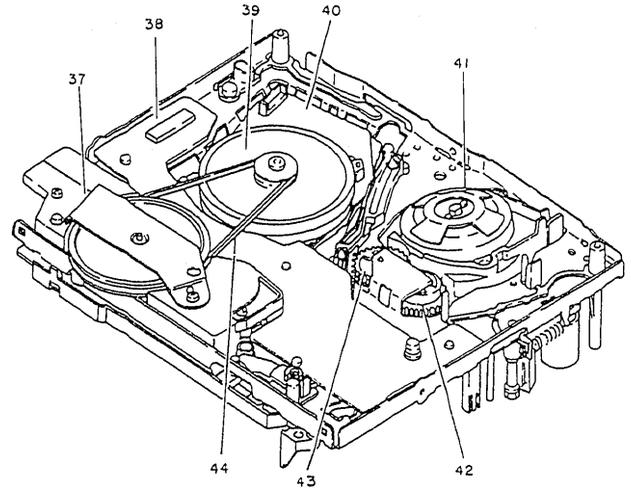


Fig. 4-3 Bottom View of Mechanism

37. Clutch Gear Assembly
38. Sensor/Motor Drive P.C.B
39. Capstan Motor
40. Capstan Motor P.C.B
41. Cylinder Motor
42. Supply Loading Gear
43. Take-up Loading Gear
44. Reel Belt

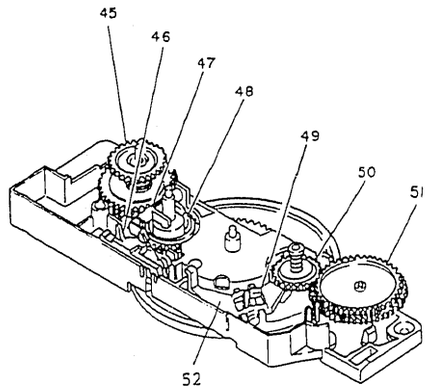


Fig. 4-4 Clutch Gear Assembly

45. Take-up Gear
46. Clutch Arm
47. Change Arm
48. Change Gear
49. Take-up Pulley
50. FL Change Gear
51. Relay Gear
52. FL Change Arm

Be sure to remove cases, etc. before servicing the mechanism and replacing components, otherwise, the cases, etc. could be damaged.

(Procedure of disassembly)
Remove the parts in the order of letters shown in the illustrations.
(Procedure of reinstallation)
Reinstall the parts by the reverse procedure to removal when no special cautions are given.

5. CASSETTE LOADING MECHANISM REMOVAL

1. Cassette Loading Mechanism (Fig. 5-1)

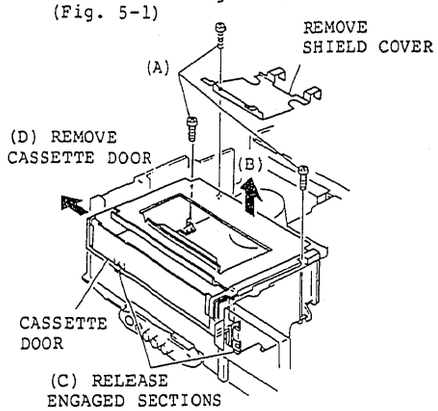


Fig. 5-1

2. Loading Gear Assembly, Chassis Holder, Cassette Holder Assembly and Front Holder

Loading Gear Assembly (A in Fig. 5-2)
Chassis Holder (B in Fig. 5-2)
Cassette Holder Assembly (C in Fig. 5-2)
Front Holder (D in Fig. 5-2)

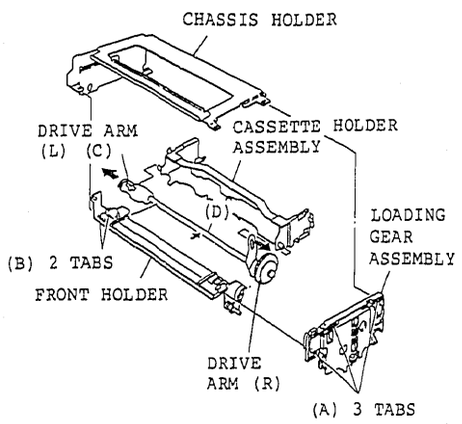
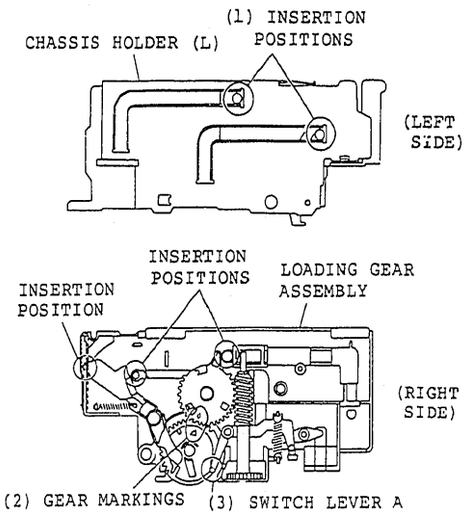


Fig. 5-2

(Cautions when reinstalling)
1) Check the insertions of 4 bosses.
2) Check the alignment markings.
3) Check the position of cassette switch lever (A).



3. Cassette Holder Base and Cassette Holders (L/R)

Cassette Holder Base (A in Fig. 5-3)
Cassette Holders (L/R) (B in Fig. 5-3)

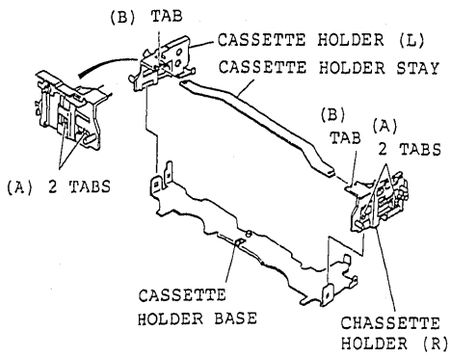


Fig. 5-3

6. LOADING GEAR REMOVAL

1. Gear Bracket, FL Worm Gear, Door Arm, Worm Wheel and Switch Levers A/B

Gear Bracket (A in Fig. 6-1)
FL Worm Gear (B in Fig. 6-1)
Door Arm (C in Fig. 6-1)
Worm Wheel (D in Fig. 6-1)
Switch Levers A/B (E and F in Fig. 6-1)

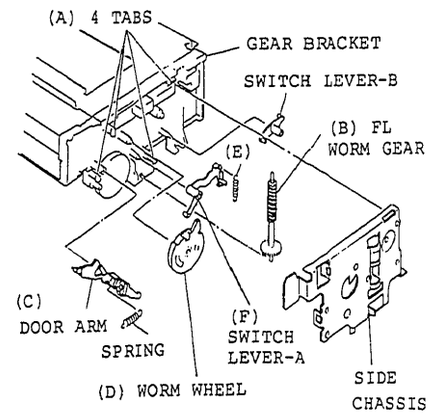


Fig. 6-1

7. MAIN MECHANICAL COMPONENTS REMOVAL

1. Impedance Roller/FE (Full Erase) Head and A/C (Audio/Control) Head

Impedance Roller/FE (Full Erase) Head (A - E in Fig. 7-1)
A/C (Audio/Control) Head (F - G in Fig. 7-1)

(Cautions when reinstalling)
1) Hook the bottom of the spring under the head base to the chassis and the top to the stopper of the head base.

(Adjustments after reinstalling)
1) A/C (Audio/Control) Head Adjustment (page 4-6)
2) X-Value Adjustment (page 4-8)
3) Audio Playback Level Adjustment (page 3-13)
4) Audio Bias Level Adjustment (page 3-15)

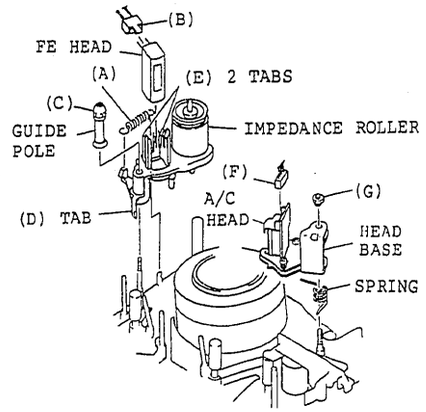


Fig. 7-1

2. Head Cleaning Arm and Bracket Assemblies (Fig. 7-2)

(Caution during work)
1) Lift the head cleaning arm assembly and remove two (2) screws (C).

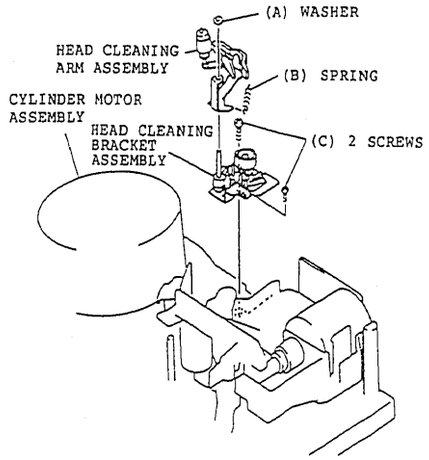


Fig. 7-2

3. Cylinder Motor Assembly (Fig. 7-3)

(Cautions during work)
1) Remove the pre/rec amp circuit board first.
2) Place the side of the unit down for working.
3) Do not touch video head tips.

(Adjustment after reinstalling)
1) Adjustment after replacing the cylinder (video heads) (page 4-9)

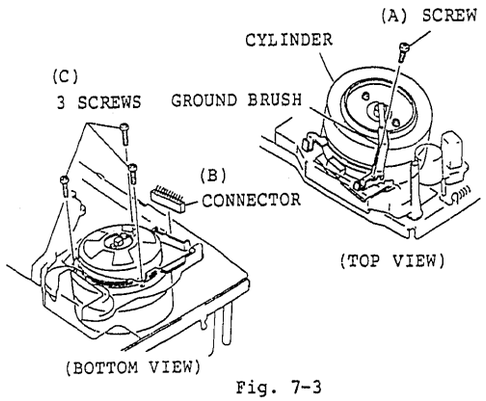


Fig. 7-3

4. **Capstan Motor Assembly** (Fig. 7-4)

(Caution when reinstalling)
1) Keep the capstan shaft clean.

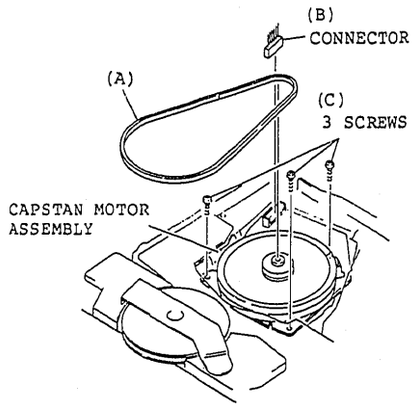


Fig. 7-4

5. **Loading Motor/Mechanism State Switch Assembly** (Fig. 7-5)

(Caution during work)
1) Release the 2 bosses of the motor holder from the screw holes in the motor when releasing tab (D).

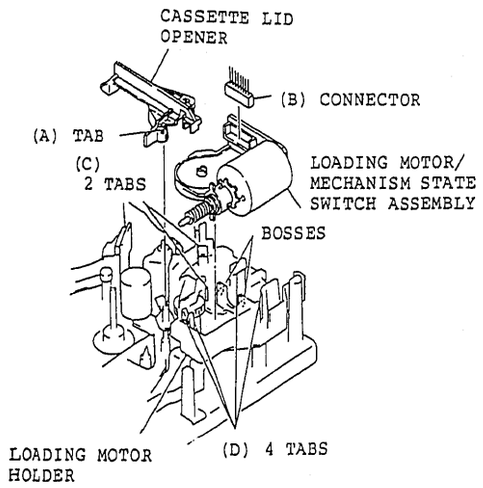


Fig. 7-5

6. **Tension Arm/Tension Band** (Fig. 7-6)

(Caution during work)
1) Move the supply subbrake in the direction of arrow (D) when removing the tension band.

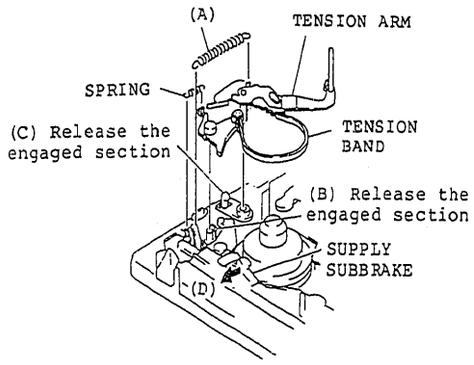


Fig. 7-6

7. **Slider Block and Reel Drive Idler** (Fig. 7-7)

Slider Block (A in fig. 7-7)
(Caution when reinstalling)
1) Push the supply subbrake, supply main brake and take-up main brake in the direction of the arrows when reinstalling them.
2) Check that 2 bosses of the load bracket assembly are inserted. Check that the boss of slider M does not ride on the tension operation arm or ride over it.

Reel Drive Idler (B in Fig. 7-7)

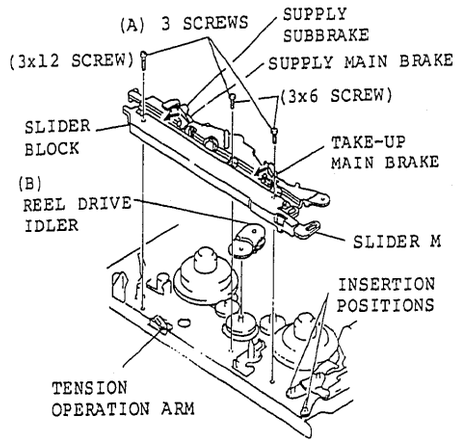


Fig. 7-7

8. **Supply/Take-up Reel Disks and S-VHS Switch**

Components to remove previously	Item
Slider Block	7-7
Tension Arm/Tension Band	7-6

Supply/Take-up Reel Disks and S-VHS Switch (Fig. 7-8)

(Caution during work)
1) Move the take-up brake in the direction of the arrow when removing the take-up reel disk.
2) Remove two screws holding the S-VHS switch.

(Caution when reinstalling)
1) Be sure to install a washer on the installation shaft.

(Adjustments after installing)
1) Tension Pole Position and Tension Adjustments
2) Reel Disk Height Adjustment (page 4-3)

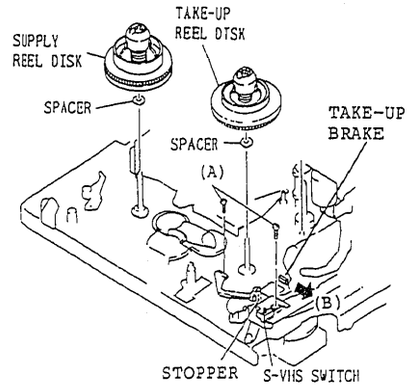


Fig. 7-8

9. **Pressure Roller Assembly, Supply/Take-up Guide Poles and Suply/Take-up Guide Rollers**

Pressure Roller Assembly (A and B in Fig. 7-9)

(Cautions when reinstalling)
1) Insert the pin of the pressure roller into the hole in the pressure roller operation arm.
2) Keep the surface of the pressure roller which is in contact with the tape clean.

Supply/Take-up Guide Poles (C in Fig. 7-9)

(Caution when reinstalling)
1) Keep the surface of the guide pole which is in contact with the tape clean.

(Adjustment after reinstalling)
1) Guide Pole Height Adjustment (page 4-4)

Supply/Take-up Guide Rollers (D and E in Fig. 7-9)

(Adjustment after reinstalling)
1) Guide Roller Height Adjustment (page 4-5)

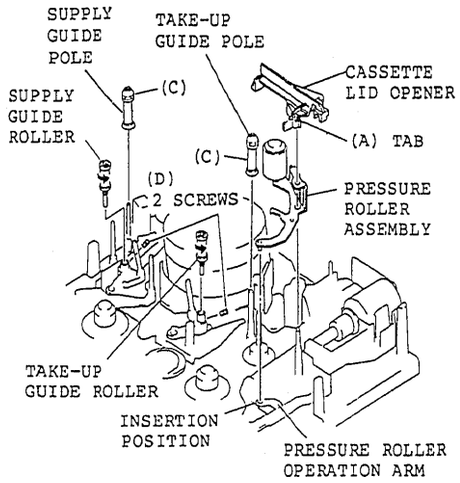


Fig. 7-9

10. **Loading Motor Block, Brake Change Arm, Brake Link Arm and FS Brake Arm**

Loading Motor Block (A – D in Fig. 7-10)

(Caution during work)
1) Remove the loading motor block while holding the section indicated by arrow (E) so the load bracket assembly does not lift.

(Adjustment after reinstalling)
1) Mechanism Sate Switch Adjustment (page 4-2)

Brake Change Arm (F in Fig. 7-10)

(Caution when reinstalling)
1) Check that the boss is inserted into the hole in the brake link arm.

Brake Link Arm (G and H in Fig. 7-10)

Components to remove previously	Item
Slider Block	7-7
Take-up Reel Disk	7-8

(Cautions when reinstalling)
1) Check that the boss of the brake lift arm is inserted securely.
2) Check that the boss of the brake change arm is inserted securely.

FS Brake Arm (H and I in Fig. 7-10)

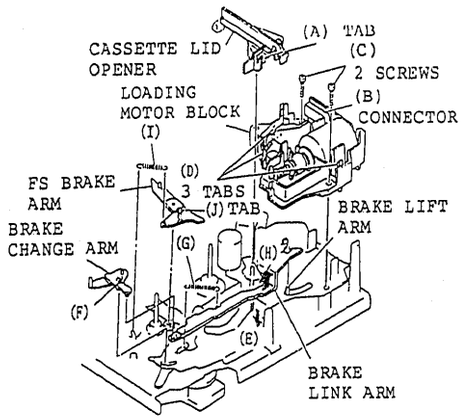


Fig. 7-10

11. Load Bracket Assembly, Take-up Brake Assembly and Draw Pin

Load Bracket Assembly (A and B in Fig. 7-11)

(Caution during work)
1) Release the boss of the loading slide gear from the hole in the lift arm when lifting the bracket assembly.

Take-up Brake Assembly (C in Fig. 7-11)

(Caution when reinstalling)
1) Check that the spring is hooked securely.

Note:
Cautions when reinstalling the draw pin
- o Do not damage the spring of the load bracket assembly.
- o After reinstalling, set the VCR to the play mode without loading a cassette and check that the draw pin does not lift.

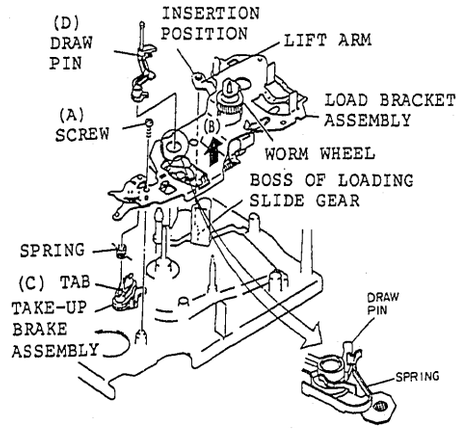


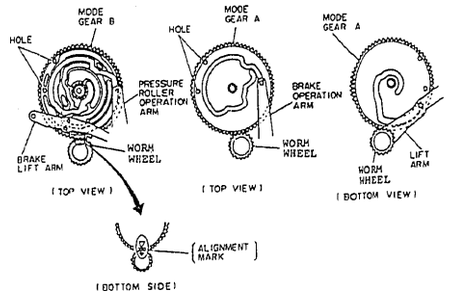
Fig. 7-11

12. Brake Operation Arm, Mode Gear, Worm Wheel, Pressure Roller Operation Arm, Mode Change Arm and Brake Lift Arm

(Before performing the work)
Remove the load bracket assembly. (See item 7-11)

Brake Operation Arm (A in Fig. 7-12)
Mode Gear (B and C in Fig. 7-12)
Worm Wheel (D in Fig. 7-12)
Pressure Roller Operation Arm and Mode Change Arm (E - G in Fig. 7-12)
Brake Lift Arm (H in Fig. 7-12)

(Caution when reinstalling)
1) Insert the bosses of each lever into the specified grooves in mode gears A and B.
2) Align the two holes in mode gears A and B.
3) Align the markings on mode gear B and the worm gear.



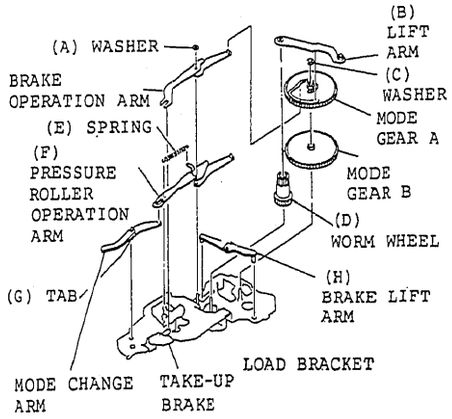


Fig. 7-12

13. Cylinder Motor Base and Supply/Take-up Loading Arms

Components to remove previously	Item
Cassette Loading Mechanism	5-1
Cylinder Motor Assembly	7-3

Cylinder Motor Base (A in Fig. 7-13)
Supply/Take-up Loading Arms (B - D in fig. 7-13)

(Caution during work)
1) Release tab (D) when removing the take-up loading arm.

(Caution when reinstalling)
1) Align the markings on each gear.

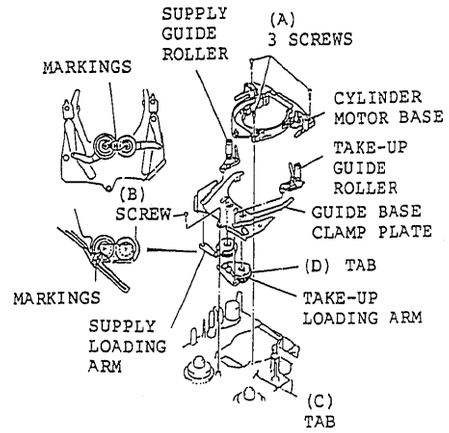


Fig. 7-13

14. Take-up Pulley and Clutch Gear Assembly

Components to remove previously	Item
Slider Block	7-7
Reel Drive Idler	7-7

Take-up Pulley (A and B in Fig. 7-14)
Clutch Gear Assembly (C in Fig. 7-14)

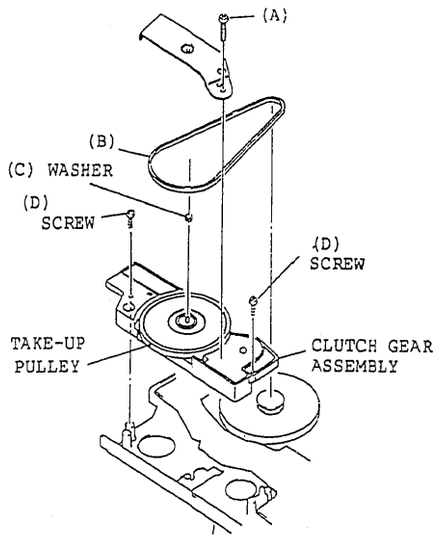


Fig. 7-14

15. Take-up Gear, Change Arm, Change Gear, Relay Gear, FL Change Gear and FL Change Arm (Fig. 7-15)

(Befor performing the work)
The components shown here are the gears and arms located inside the clutch gear assembly. As these components are not supplied, use the figure as a reference for reinstallation.

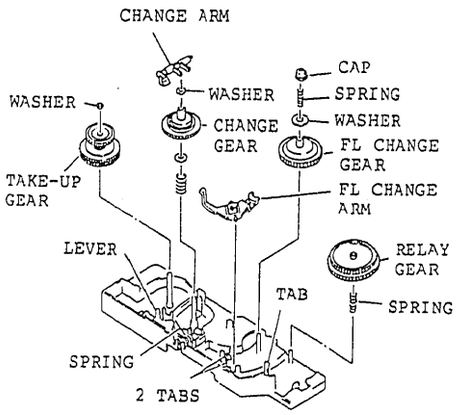


Fig. 7-15

CHAPTER 3

ELECTRIC CIRCUIT ADJUSTMENT

Test equipment and tapes necessary for adjustment

1) Dual-trace oscilloscope
2) Color bar generator
3) VTVM
4) DC voltmeter
5) Frequency counter
6) Monitor TV (with A/V jacks)
7) Alignment tapes
   - o MH-1 : Parts No. 7099046
   - o 30HMP2-1: Parts No. 7099089
   - o 24HMASF-2: Parts No. 7099153 (Hi-Fi alignment tape)
8) Blank tape
9) C/R oscillator
10) Vectorscope

Cautions on adjustments

1) If there are no special instructions, the following conditions apply.
   - o Oscilloscope probe: 10:1
   - o Oscilloscope synchronization: Internal sync
   - o Ground of test equipment: TP602 (GND) on SSJ P.C.B
2) When making more than one adjustment, perform the adjustments in the order listed.

Servicing positions

The circuit boards can be set to the servicing positions as follows when servicing and adjusting the unit.

1) Remove the side panels, top and bottom covers and the front panel. (See the items in the section on case removal in chapter 2.)
2) Open the FSW (Front Switch) and FIT (Timer) circuit boards and lift up the entire SSJ (Servo/System Control/Jack) circuit board. (See the items in the section on circuit board removal in chapter 2.)
3) Move the circuit board holder at the center left of the SSJ (Servo/System Control/Jack) circuit board in the direction of arrow (A). (Fig. 1)
4) Set the SSJ (Servo/System Control/Jack) circuit board to the vertical position and connect it to the REL (Wiring) circuit board via connectors. (Fig. 2)
5) Set the circuit board holder to the cassette loading mechanism section. (Fig. 2)
6) Turn the stay of the rear panel section and insert it into the pin of the AC panel section. Hold the stay by the tab of the AC panel section. (Fig. 3)

(Caution)
When the VTR is set to the servicing position, it is not possible to operate the VTR from the switches on the front panel. Use the remote control to operate the VTR.
Press S765 (EJECT) on the FIT (Timer) circuit board to remove the cassette.

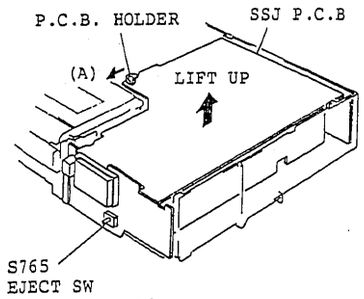


Fig. 1

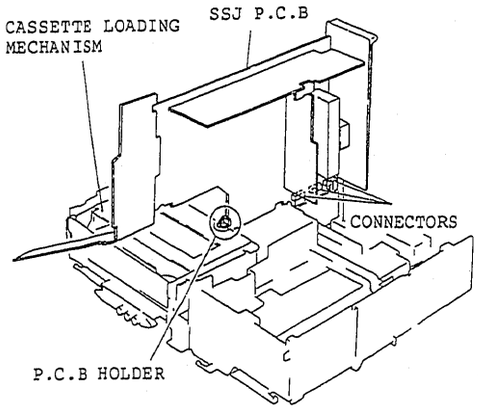


Fig. 2

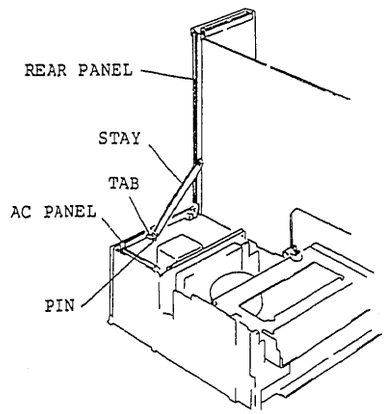
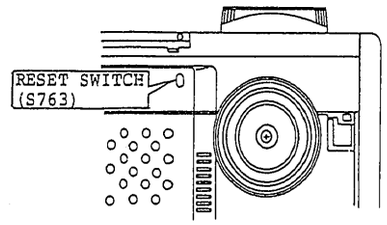


Fig. 3

Usable servicing methods

1. To reset the timer microprocessor

The timer microprocessor is not reset when the power cord is unplugged from the AC outlet as its power is backed up by the backup circuit. Press switch S763 on the FIT (Timer) circuit board to reset the timer microprocessor.



- Bottom of VTR -

2. To release the blue background function

1) Press the MENU button on the remote control to display the guide menu on the monitor screen.
2) Select "3" to obtain the "VTR mode" picture.
3) Press button "3 on the remote control to set the AUTO BLUE section to "NO".

3. To set the VTR to the test mode

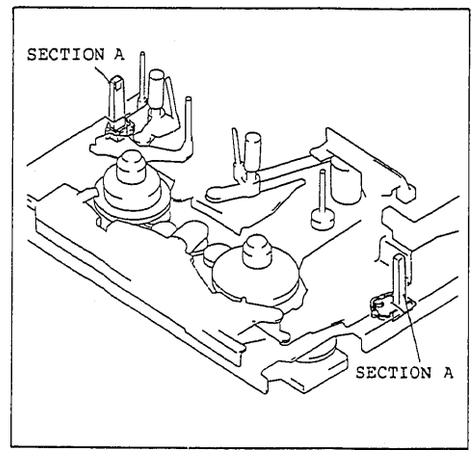
Connect TP601 to TP603 on the SSJ circuit board to set the servo circuit to the EP playback mode (test mode.)

4. To set the VTR to the loading state without loading a cassette

1) Remove the top cover and front panel.
2) Remove the cassette loading mechanism.
3) Unplug the power cord from the AC outlet.
4) Cover the supply and take-up end sensors with black masking tape, etc. to shut off the light.
5) Plug the power cord into an AC outlet.
6) Turn the VTR on.
   The VTR can accept the inputs of each mode in this state. However, the rewind operation cannot be performed for more than a few seconds because the take-up reel disk is in the stop state and reel pulses cannot be detected.

(Cautions)
Always return the VTR to the original state in the following order after the above operations have been completed.

1) Remove the masking tape, etc. from the supply and take-up end sensors.
2) Unplug the power cord from the AC outlet once to reset the system control microprocessor.



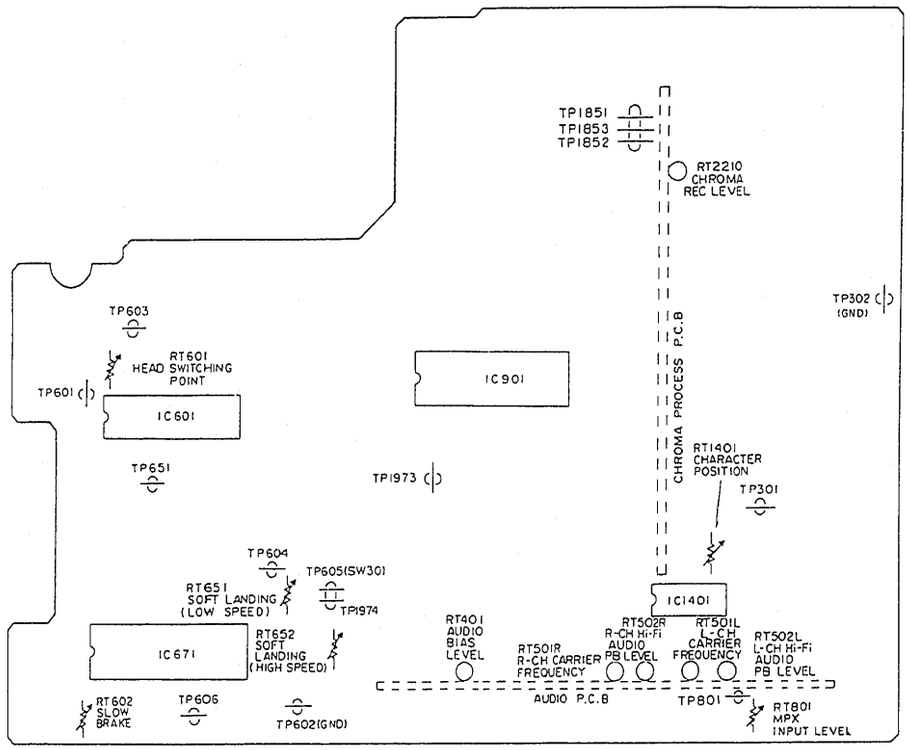


Fig. 1 SSJ Circuit Board (Solder Side)

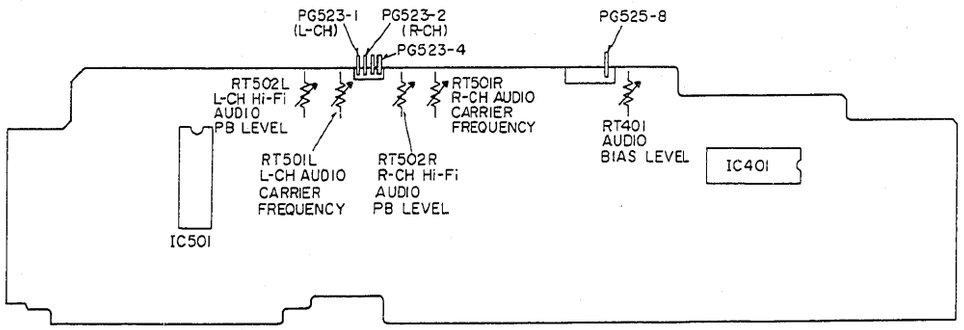


Fig. 2 Audio Circuit Board (Components Side)

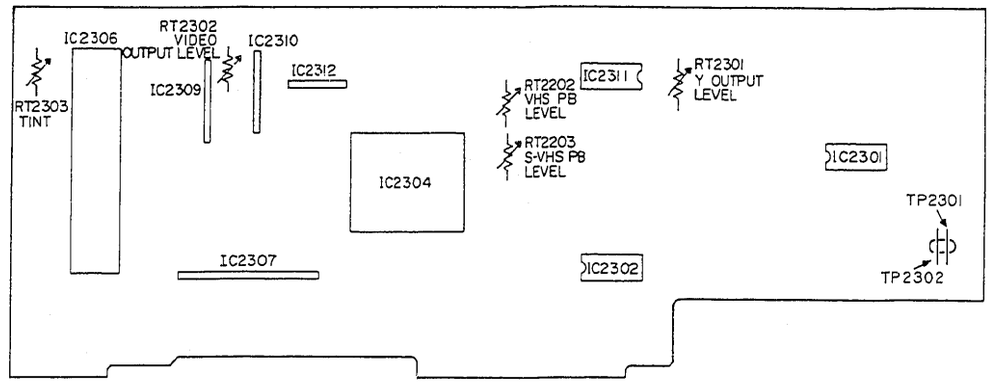


Fig. 3 YCJ Circuit Board (Solder Side)

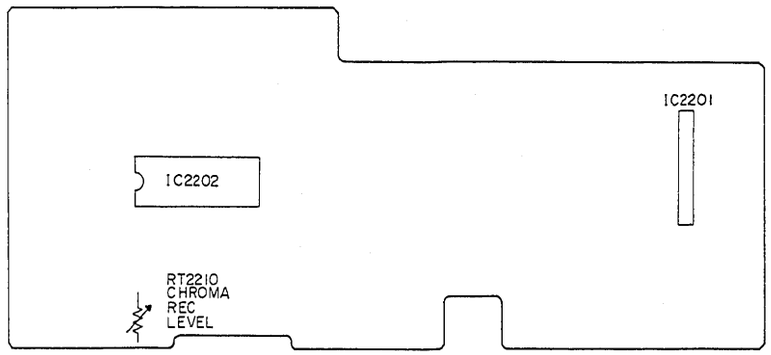


Fig. 4 Chroma Process Circuit Board (Components Side)

1. SERVO CIRCUIT ADJUSTMENTS

1. Head Switching Point Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To set the video head switching point during play to approximately the center where the CH-1 and CH-2 envelopes overlap each other.
Fault: o The vertical sync signal is degraded and vertical jitter occurs.
o Switching noise appears across the bottom of the screen.

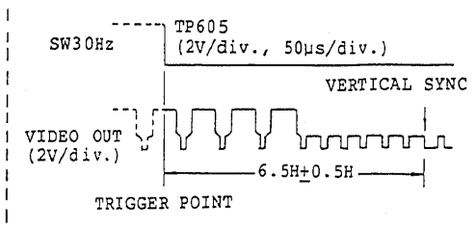
Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o Oscilloscope	o CH-1: VIDEO OUT o CH-2: TP605 (SW30)	o Play alignment tape (color bar signal)	o RT601 (HEAD SWITCHING POINT)
o Alignment tape (MH-1) (Parts No.7099046)			

Adjustment Procedure

(Settings of oscilloscope)
o Trigger with CH-2.
o Set the sync slope to "-".

Vertical sync signal:
Set to 6.5H+0.5H from the trailing edge (trigger position) of the SW30Hz pulse.

Waveforms



2. Autotracking Preset Check

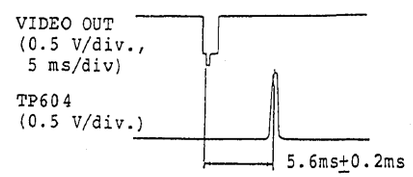
Purpose of adjustment and fault occurring if incomplete
Purpose: To check the autotracking operation by playing back tape recorded by the same VTR.
Fault: o Noise occurs on the TV screen during autotracking.
o Noise cannot be removed completely by pressing the tracking buttons.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o Oscilloscope	o CH-1: VIDEO OUT o CH-2: TP604 (CTL)	o Play alignment tape.	——
o Alignment tape (30HMP2-1) Part No. 7099089			

Adjustment Procedure

1) Play alignment tape (AUTOTRACKING: ON).
2) Check that the waveforms on the oscilloscope are as shown on the right.
3) If they drift, check the servo circuit and adjust the X value.

Waveforms



3. Vertical Jitter Correction

Purpose of adjustment and fault occurring if incomplete
Purpose: To suppress vertical jitter during slow motion and still play.
Fault: Vertical jitter occurs in the picture during slow motion and still play.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Points
o Monitor TV	o Check with monitor TV	o Record color bar signal and play it back with the same VTR	o TRACKING UP (behind the front door) o TRACKING DOWN (behind the front door)
o Color bar generator	o VIDEO IN		
o Blank tape			

Adjustment Procedure

(EP V. jitter correction):
Record in the EP mode and play back in the still mode with the same VTR.

1) Press the PAUSE button of the VTR to set it to the still play mode.
2) Suppress vertical jitter in the picture.

Waveforms

(SP V. jitter correction):
Record in the SP mode and play back in the still mode with the same VTR.

1) Press the PAUSE button of the VTR to set it to the still play mode.
2) Suppress vertical jitter in the picture.

4. Slow Brake Adjustment

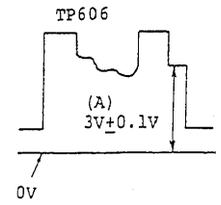
Purpose of adjustment and fault occurring if incomplete
Purpose: To set the brake control voltage of the capstan motor during slow play.
Fault: The picture is distorted during slow play.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o Color bar generator	o VIDEO IN	o Record color bar signal and play it back with the same VTR. (SP mode)	o RT602 (SLOW BRAKE)
o Oscilloscope	o TP606 (C. CONT)		
o Blank tape			

Adjustment Procedure

1) Set the DC level at section (A) of the waveform to 3.0V ± 0.1V.

Waveforms



5. EP Slow Tracking Preset Adjustment

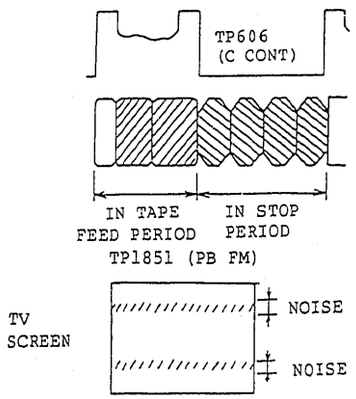
Purpose of adjustment and fault occurring if incomplete
Purpose: To adjust the timing with which brake pulses are generated for the capstan motor during slow play and minimize noise.
Fault: Noise occurs during slow play and the picture is difficult to see.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Points
o Monitor TV	o Check with monitor TV	o Slow tracking: Unplug the power cord from the AC outlet to set the slow tracking to the center. o Record color bar signal and play it back with the same VTR.	o TRACKING UP (behind the front door) o TRACKING DOWN (behind the front door)
o Color bar generator	o VIDEO IN		
o Oscilloscope	o CH-1: TP1851 (PB FM) o CH-2: TP606 (C CONT)		

Checking Procedure

1) Perform recording and playback in the EP mode using the same VTR.
2) While holding the tracking (▲) and (▼) buttons on the remote control depressed, press the play button on the VTR to set the VTR to the forced slow mode.
3) Tracking: Maximize the FM envelope in the stop period during slow play. (Trigger the oscilloscope with CH-2. Set the sync slope to "-".)
4) Check that no noise appears on the monitor TV screen.
5) Press the play button to return the VTR to the play mode.
6) Set the VTR to the reverse slow mode. Adjust the tracking and check that no noise appears in the stop period during the intermittent drive. (The preset position in the forward slow mode does not change.)

Waveforms



Noises appear at the 1/8 - 1/6 positions on the screen in the tape feed period of the intermittent drive during reverse slow play.

6. SP Slow Tracking Preset Adjustment

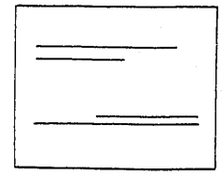
Purpose of adjustment and fault occurring if incomplete
Purpose: To adjust the timing with which brake pulses are generated for the capstan motor during slow play and minimize noise.
Fault: Noise occurs during slow play and the picture is difficult to see.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Points
o Monitor TV	o Check with monitor TV	o Slow tracking: Unplug the power cord from the AC outlet to set the slow tracking to the center. o Record color bar signal and play it back with the same VTR.	o TRACKING UP (behind the front door) o TRACKING DOWN (behind the front door)
o Color bar generator	o VIDEO IN		

Checking Procedure

1) Perform recording and playback in the SP mode using the same VTR.
2) While holding the tracking (▲) and (▼) buttons on the remote control depressed, press the play button on the VTR to set the VTR to the forced slow mode.
3) Tracking: Make the slow feed noise appear across the bottom of the screen and then remove it from the bottom of the screen.
4) Check that no noise appears on the monitor TV screen.
5) Press the play button to return the VTR to the play mode.
6) Set the VTR to the reverse slow play mode. Adjust the tracking and check that no noise appears in the stop period during the intermittent drive. (The preset position in the forward slow mode does not change.)

Waveforms



Noises appear at the 1/4 positions on the screen in the tape feed period of the intermittent drive during revese slow play.

7. CTL Pulse Level Check

Purpose of adjustment and fault occurring if incomplete
Purpose: Check that the CTL pulse is recorded at a saturation level and the playback amp gain operates normally.
Fault: The servo circuit becomes unlocked when recording and playback are performed using the same VTR and different VTRs.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o Oscilloscope	o CH-1: TP604 (CTL) o CH-2: TP605 (SW30Hz)	o Record in the EP mode and play back with the same VTR.	———
o Color bar generator	o VIDEO IN		
o Blank tape			

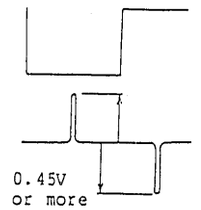
Checking Procedure

1) Check that the level of the CTL pulse on the oscilloscope is 0.45 V or more.

(Settings of oscilloscope)
o Trigger with CH-2.
o Set the sync slope to "-".

Waveforms

CH-2: TP605 (SW30Hz)
(2V/div.)



CH-1: TP604 (CTL)
(0.5 V/div., 5ms/div.)

8. Soft Landing Speed Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To adjust the warp search speed. (Capstan motor speed adjustment during fast forward and rewind)
Fault: o The fast forward or rewind speed becomes faster or slower.
o The picture fluctuates during warp search.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Points
o Oscilloscope o Blank tape	o TP651 (C. FG)	o Load a bank tape. o Connect TP601 and TP603 and set to the test mode.	o RT651 (LOW SPEED) o RT652 (HIGH SPEED)

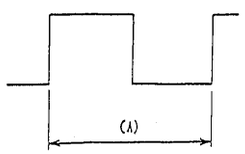
Checking Procedure

(Low speed adjustment: RT651)
1) Set the VTR to the fast forward mode.
2) Set the period of the waveform on the oscilloscope to 470/μs ± 10/μs.

(High speed adjustment: RT652)
1) Set the VTR to the rewind mode.
2) Set the period of the waveform on the oscilloscope to 77 μs ± 1μs.

Waveforms

TP651 (C. FG)



At low speed : (A) = 470 μs ± 10 μs
At high speed: (A) = 77 μs ± 1 μs

2. VIDEO CIRCUIT ADJUSTMENTS

1. Y Output Level Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To set the Y (luminance) output level to the specified value.
Fault: The specified brightness is not obtained.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o Color bar generator o Oscilloscope	o VIDEO IN o TP2301 (Y output)	o Color bar signal (line input) o S-VHS mode o E-E mode	o RT2301

Adjustment Procedure

1) Terminate the S terminal (Y output) with 75 ohm.
2) RT2301: Set the output signal amplitude to 1 ± 0.02 Vp-p.

Waveforms

2. Video Output Level Adjustment

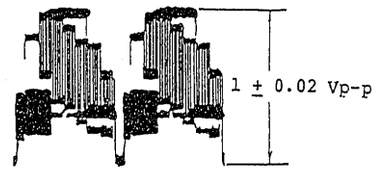
Purpose of adjustment and fault occurring if incomplete
Purpose: To set the video output level to the specified value.
Fault: The specified brightness is not obtained.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o Color bar generator o Oscilloscope	o VIDEO IN o VIDEO OUT	o Color bar signal (line input) o S-VHS mode o E-E mode	o RT2302

Adjustment Procedure

1) Terminate the video output jack with 75 ohm.
2) RT2203: Set the output signal amplitude to 1 ± 0.02 Vp-p.

Waveforms



3. S-VHS Playback Level Adjustment

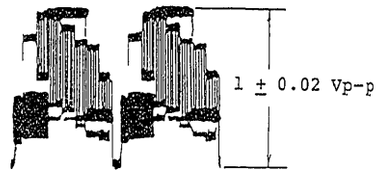
Purpose of adjustment and fault occurring if incomplete
Purpose: To set the video playback output level in the S-VHS mode to the specified value.
Fault: o The specified brightness is not obtained.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o Color bar generator	o VIDEO IN	o Record and play back a color bar signal in the S-VHS mode using the same VTR (SP mode).	o RT2203
o Oscilloscope	o VIDEO OUT		
o Blank tape (S-VHS)			

Adjustment Procedure

1) Terminate the video input jack with 75 ohm.
2) RT2203: Set the output signal amplitude to 1 ± 0.02 Vp-p.

Waveforms



4. VHS Playback Level Adjustment

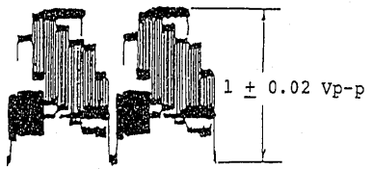
Purpose of adjustment and fault occurring if incomplete
Purpose: To set the video playback output level in the VHS mode to the specified value.
Fault: o The specified brightness is not obtained.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o Color bar generator	o VIDEO IN	o Record and play back a color bar signal in the VHS mode using the same VTR (SP mode).	o RT2202
o Oscilloscope	o VIDEO OUT		
o Blank tape (VHS)			

Adjustment Procedure

1) Terminate the video input jack with 75 ohm.
2) RT2202: Set the output signal amplitude to 1 ± 0.02 Vp-p.

Waveforms



5. Chroma Recording Level Adjustment

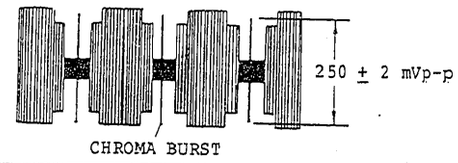
Purpose of adjustment and fault occurring if incomplete
Purpose: To set the chroma recording level to the optimum level.
Fault: o Beats occur.
o Coloring Becomes defective.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o Color bar generator	o VIDEO IN	o Record a color bar signal in the VHS mode. o Recording speed select switch: EP	o RT2210
o Oscilloscope	o TP1852		
o Blank tape (VHS)			

Adjustment Procedure

RT2210: Set the chroma burst level to 250 ± 2 mVp-p.

Waveforms



6. Y/C Separation Filter Check

Purpose of adjustment and fault occurring if incomplete
Purpose: To check the accuracy of the separation into the Y and chroma signals.
Fault: o Colors smear.
o Moire pattern occurs.

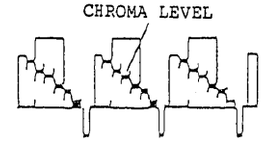
Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o Color bar generator	o VIDEO IN	o Apply a color bar signal and set to the E-E mode. o S-VHS mode	——
o Oscilloscope	o TP2301 (Y output)		

Adjustment Procedure

1) Terminate the S terminal (Y output) with 75 ohm.
2) Check that the chroma level is 20 mVp-p or less on the oscilloscope.

Waveforms

CHROMA LEVEL



7. TINT Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To set the tint during play to the reference level.
Fault: The correct tint is not obtained.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o Color bar generator	o VIDEO IN	o S-VHS mode o Record a color bar signal in the SP mode and play it back using the same VTR.	o RT2303
o Vectorscope	o VIDEO OUT		
o Monitor TV	o VIDEO OUT		

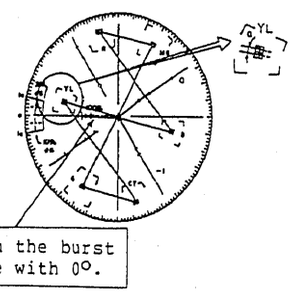
Adjustment Procedure

- When using a vectorscope -
1) Set the burst phase to 0°.
2) RT2303: Set the center of YL (yellow) signal within range (a) as shown on the right.
3) Check that the tint is optimum with the monitor TV.

Note: When the burst phases do not match, optimize the PHASE adjustment of the vectorscope.

- When using a monitor TV -
1) Optimize the tint while observing the monitor screen.

Waveforms



3. AUDIO CIRCUIT ADJUSTMENT

1. Carrier Frequency Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To set the audio carrier frequency to the specified value.
Fault: o Compatibility with tapes recorded by another VTR cannot be obtained.
o Hi-Fi audio is not played back.

Test Equipment/Jig	Test Equipment Connection Points	VTR State	Adjustment Points
o Frequency counter	o PG523-1 (when adjusting RT501L) o PG523-2 (when adjusting RT501R)	o REC mode	o RT501L (L-CH) o RT501R (R-CH) (CARRIER FREQUENCY)

Adjustment Procedure

RT501L:
The frequency counter reads 1300kHz±4kHz at PG523-1.

RT501R:
The frequency counter reads 1700kHz±4kHz at PG523-2.

2. Hi-Fi Audio Playback Level Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To set the Hi-Fi audio playback level to the specified value.
Fault: The optimum volume cannot be obtained.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Points
o VTVM o Hi-Fi alignment tape (24HMASF-2) (Parts No.7099153)	o When adjusting RT502L: AUDIO OUT L o When adjusting RT502R: AUDIO OUT R	o Play Hi-Fi alignment tape.	o RT502L (L-CH) o RT502R (R-CH) (AUDIO PLAYBACK LEVEL)

Adjustment Procedure

(Adjust RT502L and RT502R in the same way.)
Set the reading of the VTVM to -4.8±0.1 dBs.

3. Recording/Playback Envelope Check

Purpose of adjustment and fault occurring if incomplete
Purpose: To check the outputs of the Hi-Fi audio heads and preamplifiers.
Fault: Hi-Fi sound is not output.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o Color bar generator	o VIDEO IN	o Record color bar signal as video without audio signal. o SP mode	——
o Oscilloscope	o CH-1: PG523-1 o CH-2: PG523-4		

Adjustment Procedure

1) Play back the recorded tape.
2) Trigger the oscilloscope with PG523 pin 4 (SW30Hz-A).
3) Observe the waveforms on the oscilloscope and check that the amplitudes of the CH-1 and CH-2 envelopes are 120mVp-p or higher.
4) If the above values are not obtained, check (or replace) the cylinder or pre/rec amplifier.

4. AUDIO OUT-2 Jack Output Level Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To check the output level at the AUDIO OUT-2 jack.
Fault: Sound becomes abnormal.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o C/R oscillator	o AUDIO IN (L-CH)	o E-E mode	——
o VTVM	o AUDIO OUT (L-CH)		

Adjustment Procedure

1) Adjust the output level of the C/R oscillator so the VTVM reads -4.8±0.1 dBs. (1kHz sine wave)
2) Connect the VTVM to the AUDIO OUT-2 jack.
3) Check that the VTVM reads -4.8±2 dBs with the headphone level control set to the center.
4) Check that the VTVM reads +2.2±3 dBs with the headphone level control set to maximum.
5) If the above values cannot be obtained, check (or replace) the circuit on the audio circuit board, output jack and headphone level control.

5. EE Audio Level Check

Purpose of adjustment and fault occurring if incomplete
Purpose: To check the audio level in the EE mode.
Fault: Sound is abnormal in the EE mode.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o C/R oscillator	o AUDIO IN (L-CH)	o E-E mode	——
o VTVM	o AUDIO OUT-1 (L-CH)		

Adjustment Procedure

1) Apply a 1kHz, -7.8dB sine-wave signal to the AUDIO IN jack.
2) Check that the VTVM reads -5.8 ± 2 dBs when the recording level control (RV751) is set to the center.
3) If the above value cannot be obtained, check the audio circuit board and EE audio line.

6. Bass Boost Level Check

Purpose of adjustment and fault occurring if incomplete
Purpose: To check that low-frequency amplification of the theather sound.
Fault: The low-frequency is not amplified and sound does not change when the theater switch is turned on.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o C/R oscillator	o AUDIO IN (L-CH)	o E-E mode	——
o VTVM	o AUDIO OUT-1 (L-CH)		

Adjustment Procedure

1) Apply a 50 Hz, -27.8 dBs sine-wave signal to the AUDIO IN jack.
2) Check that the audio level on the VTVM is raised by 16 dBs ± 3 dBs when the theater switch (S751) is turned on when compared to the level when it is turned off.

7. Audio Bias Level Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To set the recording bias to the optimum level.
Fault: o Bias too high: High-frequency response deteriorates.
o Bias too low : Sound tends to be distorted.

Test Equipment/Jig	Test Equipment Connection Points	VTR State	Adjustment Point
o VTVM	o PG525-8 (BIAS)	o No-signal record mode (SP mode)	o RT401

Adjustment Procedure

Set the reading of the VTVM to 67.0mV ± 1.0mV.

(Frequency response check)
1) Connect a C/R oscillator to the AUDIO IN jack.
2) Connect a VTVM to the AUDIO OUT jack.
3) Apply the 1kHz and 5kHz sine-wave signals with the -28dBs level and check that the difference in the recording/playback outputs (EP mode) is within +3 dB.
4) If the difference in the recording/playback output levels is over ±3 dB, change the audio bias level according to the following table. (Readjust)

Difference between 1kHz/5kHz	-5dB or less	-5 - -3dB	-3 - +3dB	+3 - +5dB	+5dB or more
Bias readjustment	-16mV	-10mV	0mV	+10mV	+16mV

8. MPX Input Level Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To set the input level of the MPX signal applied to the MTS processor in IC1301 from the under/IF to the specified level.
Fault: o The S/N deteriorates or distortion becomes conspicuous.

Test Equipment/Jigs	Test Equipment Connection Points	VTR State	Adjustment Point
o VTVM	o TP801 (MPX IN)	o POWER ON (E-E mode)	o RT801
o MTS sound signal generator	o VHF input jack		

Adjustment Procedure

RT801:
The VTVM reads -19.0±0.2 dBs (74±2 mVrms)

Note:
MTS sound signal generator settings
o Audio frequency: 300Hz
o Modulation signal: L+R

9. Level Meter Adjustment

Purpose of adjustment and fault occurring if incomplete
Purpose: To make the level meter operate correctly.
Fault: The level meter does not operate normally.

Test Equipment/Jig	Test Equipment Connection Points	VTR State	Adjustment Point
o C/R oscillator	o AUDIO IN L	o Line input mode (recording level: position 5)	o TRACKING UP/DOWN (on remote control) o Meter switch (behind front panel)
o VTVM	o AUDIO OUT L		

Adjustment Procedure

1) Adjust the Input level of the CR oscillator so the VTVM reads -4.3 +0.5/-0 dB. (Input frequency: 1kHz)
2) Press the tracking up and down switches on the remote control simultaneously and then press the meter switch on the VTR front panel (behind the front door) and hold them depressed for one second or more.
3) Check that the 0dB segment light in the level meter.
4) Minimize the recording level and check that -40dB segment does not light.

4. OSD CIRCUIT ADJUSTMENT

1. Character Position Adjustment

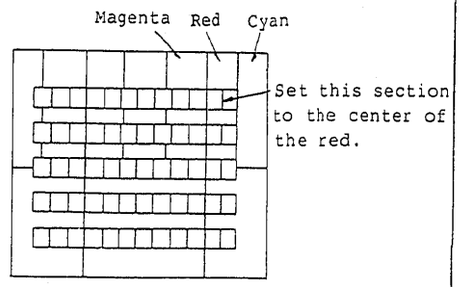
Purpose of adjustment and fault occurring if incomplete
Purpose: To set the position of characters displayed on the screen.
Fault: The display position of characters is drifted.

Test Equipment/Jig	Test Equipment Connection Points	VTR State	Adjustment Point
o Color bar generator	o VIDEO IN	o Receive color bar signal (line input) o Set to the title mode	o RT1401 (CHARACTER POSITION)
o Monitor TV	o Check with monitor TV		

Adjustment Procedure

1) Set the VTR to the title mode so the title frame appears on the screen.
2) RT1401: Set the left edge of the character on the right of the title frame to the center of the red of color bar signal.

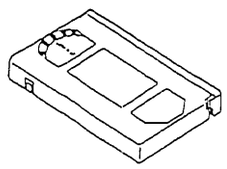
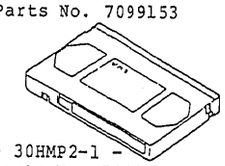
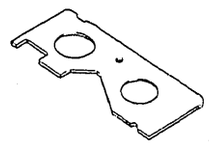
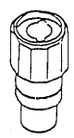
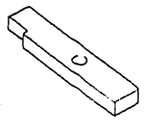
Adjustment Diagram



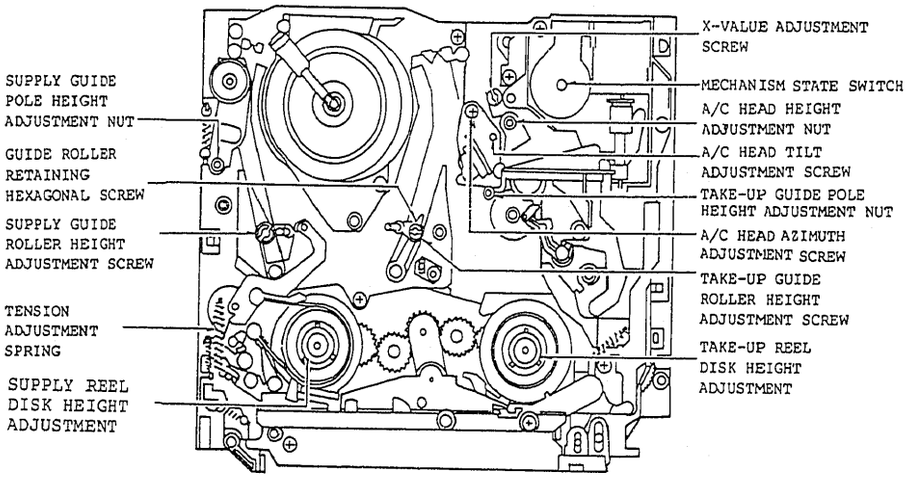
CHAPTER 4

MECHANISM ADJUSTMENT

JIGS AND TAPES FOR ADJUSTMENT

1. Back Tension Meter Parts No. 7099004 	2. Alignment Tape - MH-1 - Parts No. 7099046 - 24HMASF-2 - Parts No. 7099153  - 30HMP2-1 - Parts No. 7099089	3. Master Plane Parts. No. 7099279 
4. Torque Gauge Parts No. 7099039 	5. Torque Gauge Adapter Parts No. 7099035 	6. Reel Disk Height Jig Parts No. 7099038 
7. 1.5mm Hexagonal Wrench 0.9mm Hexagonal Wrench 		

ADJUSTMENT PARTS LOCATIONS


SUPPLY GUIDE POLE HEIGHT ADJUSTMENT NUT
GUIDE ROLLER RETAINING HEXAGONAL SCREW
SUPPLY GUIDE ROLLER HEIGHT ADJUSTMENT SCREW
TENSION ADJUSTMENT SPRING
SUPPLY REEL DISK HEIGHT ADJUSTMENT
X-VALUE ADJUSTMENT SCREW
MECHANISM STATE SWITCH
A/C HEAD HEIGHT ADJUSTMENT NUT
A/C HEAD TILT ADJUSTMENT SCREW
TAKE-UP GUIDE POLE HEIGHT ADJUSTMENT NUT
A/C HEAD AZIMUTH ADJUSTMENT SCREW
TAKE-UP GUIDE ROLLER HEIGHT ADJUSTMENT SCREW
TAKE-UP REEL DISK HEIGHT ADJUSTMENT

Top View of Mechanism

MECHANICAL PARTS ADJUSTMENT

1) Mechanism State Switch Adjustment

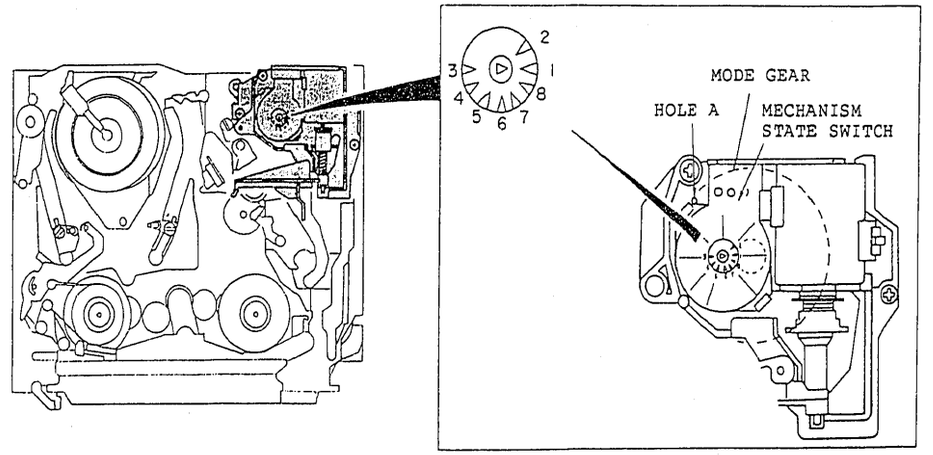
Purpose: To detect the mechanism state correctly and prevent malfunctions.

Test Equipment/Jigs	Preparation for Adjustment	State of VTR	Adjustment Points
o Blank tape	---	o Eject mode (with the cassette ejected)	o Mechanism state switch o Mode gear

Adjustment Procedure

(1) Check that the arrow on the center shaft of the mechanism state switch points to the arrow of mechanism mode indication number 1. Also check that hole (A) beside the mechanism state switch and the hole in the mode gear are aligned.
(2) If the above alignments are not obtained, adjust as follows.
   1. Remove the mechanism state switch/loading motor assembly. (See "MAIN MECHANICAL COMPONENTS REMOVAL" in CHAPTER 2)
   2. Move the mode gear to align the position of hole (A).
   3. Turn the gear on the back of the mechanism state switch so that the arrow on the center shaft of the switch points to the arrow of mechanism mode indication number 1.
   4. Reinstall the mechanism state switch/loading motor assembly in the above condition.
(3) Load a blank tape and perform various operations to check that loading and unloading are performed correctly.

Adjustment diagram



TAPE TRANSPORT SYSTEM PARTS ADJUSTMENT

The tape transport system is the path from the supply reel disk passing through the video heads to the take-up reel disk. The transport system parts, especially the parts which directly come into contact with a tape, should be kept clean without scratches, dust, oil, etc. The tape transport system has been adjusted before the unit is shipped from the factory. Therefore, when parts in the transport system are replaced, the transport system is stabilized by only adjusting the new parts correctly.

1. Reel Disk Height Adjustment

Purpose: To set the reels of the cassette to the specified height, thus determininig the height of tape.

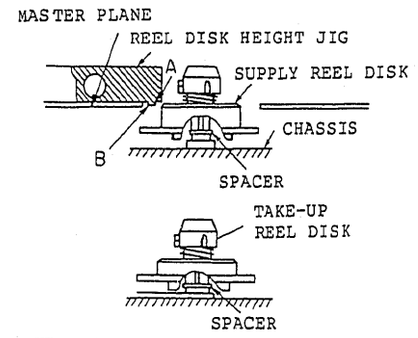
Test Equipment/Jigs	Preparation for Adjustment	State of VTR	Adjustment Points
o Master plane (Parts No. 7099279) o Reel disk height jig (Parts No. 7099038)	1) Remove the cassette loading mechanism. 2) Mount the master plane and place the reel disk height jig on it.	—	o Spacers in the supply and take-up reel disks

Adjustment Procedure

(1) Check that the reel disk is between sections A and B of the reel disk height jig.
(2) If the disk is not between sections A and B of the jig, replace the spacer (0.25mm and 0.5mm thick) in the reel disk or adjust them.

(Caution)
When the tension arm and tension band are removed, adjust the tension pole position and tension after reinstalling them.

Adjustment diagram



2. Tension Pole Position and Tension Adjustment

Purpose: To make the tension of tape constant so that the contact between the video heads and tape is stabilized

Test Equipment/Jigs	Preparation for Adjustment	State of VTR	Adjustment Points
Position adjustment —	—	1) Remove the top cover. 2) Set the VTR to the loading state without inserting a cassette. (See page 4-7)	Position adjustment: Tension band holder
Tension adjustment o Tension cassette (Parts No. 7099004)	—	Tension adjustment 3) Play the tension cassette.	Tension adjustment: Tension spring hooking position.

Adjustment procedure

- Position Adjustment -

1) Insert a flat bladed screwdriver into the groove for the tension position adjustment and set the clearance between the tension arm and chassis to 0 - +0.1 mm.
2) After adjustment is completed, perform loading without inserting a cassette and recheck the tension pole position.

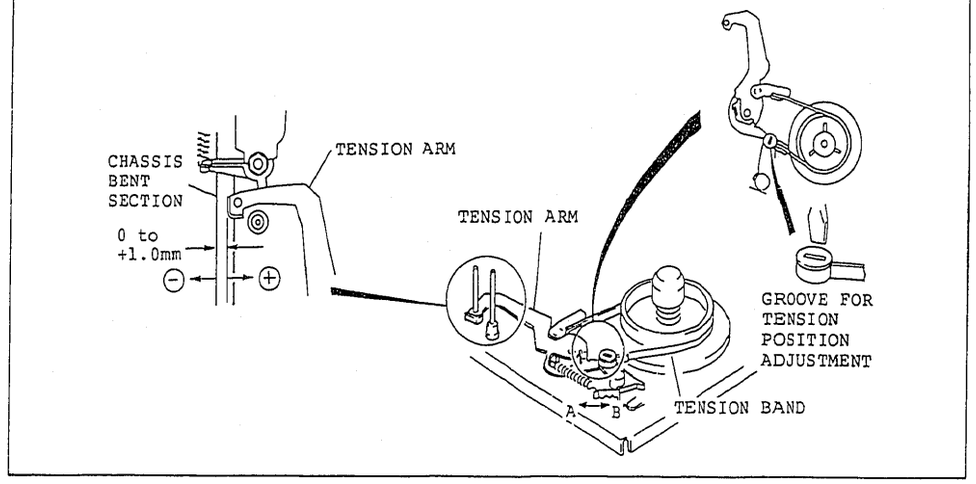
- Tension Adjustment -

Reading of tension cassette: 34 to 44 g-cm (standard value)

If the reading is higher than the standard value, move the spring in the direction of arrow (A).
If the reading is lower than the standard value, move the spring in the direction of arrow (B).

Caution: When the tension position was changed greatly (more than 6 g-cm), recheck the tension pole position.
If it is drifted, readjust the tension pole position and tension.

Adjustment diagram



3. Guide Pole Height Adjustment

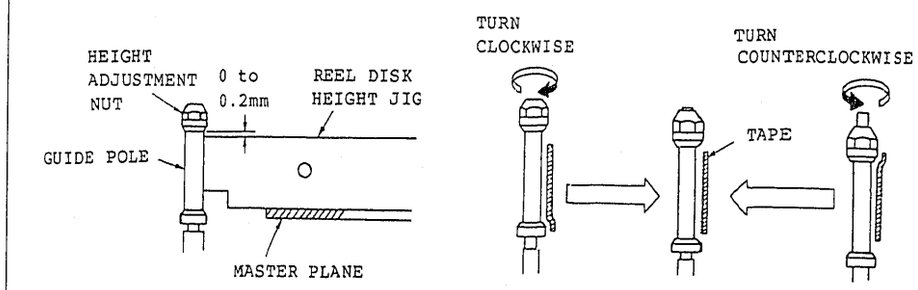
Purpose: To regulate the tape height.

Test Equipment/Jigs	Preparation for Adjustment	State of VTR	Adjustment Points
o Master plane (Parts No. 7099279) o Reel disk height jig (Parts No. 7099038)	1) Remove the cassette loading mechanism. 2) Mount the master plane and place the reel disk height jig on it.	—	o Nuts on the supply and take-up guide poles
Blank tape	—	o Playback mode	

Adjustment procedure

1) Set the clearance between the bottom of the guide pole's upper flange and top of the reel disk height jig is 0 to 0.2 mm.
2) Load a blank tape to run it and check that the tape does not ride over the upper and lower flanges of the guide pole.
3) If the tape rides over either flange, adjust the height of guide pole as follows.
If the tape rides over the upper flange, turn the nut counterclockwise.
If the tape rides over the lower flange, turn the nut clockwise.

Adjustment diagram



4. Guide Roller Height Adjustment

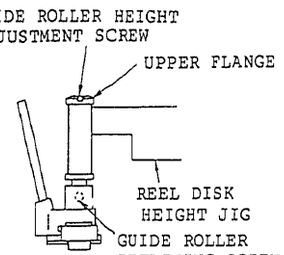
Purpose: To regulate the height of tape so that the bottom of tape runs along the tape guide line on the cylinder.

- Coarse Adjustment -

Test Equipment/Jigs	Preparation for Adjustment	State of VTR	Adjustment Points
o Master plane (Parts No. 7099279) o Reel disk height jig (Parts No. 7099038) o 0.9mm hexagonal wrench	1) Remove the cassette loading mechanism. 2) Mount the master plane and place the reel disk height jig on it.	—	o Height adjustment screws on the supply and take-up guide rollers

Adjustment procedure
1) Loosen the guide roller retaining screw (so that the guide roller does not turn during loading, unloading and play).
2) Align the bottom of the guide roller's upper flange and the top of the reel disk height jig.
3) Perform the precise adjustment continuously.

Adjustment diagram



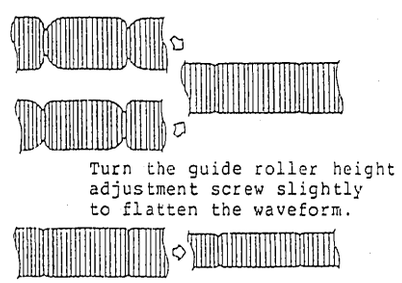
- Precise Adjustment -

Test Equipment/Jigs	Test Equipment Connection Points	State of VTR	Adjustment Points
o Oscilloscope	o CH-1: K305 o CH-2: TP605	o Play alignment tape.	o Guide roller height adjustment screws.
o Alignment tape (30HMP2-1) (Parts No. 7099089) o Hexagonal wrench			

Connection diagram
See connection diagram 1 on page 4-11 for the connection of test equipment. Play alignment tape to operate the autotracking function when short-circuiting the specified positions.

Adjustmnet procedure
1) Autotracking: ON
(When this adjustment is performed after the cylinder has been replaced, set the tracking control so that the FM output is maximum.)
2) Height adjustment screw: Flatten the FM waveform.
3) Press the tracking control buttons up(▲) and down(▼) on the remote control.
4) Check that the drops of FM output are uniform at the start and end.
5) Tighten the guide roller retaining screw.

Waveform diagrams


Turn the guide roller height adjustment screw slightly to flatten the waveform.
Autotracking: ON
Press the tracking control buttons.

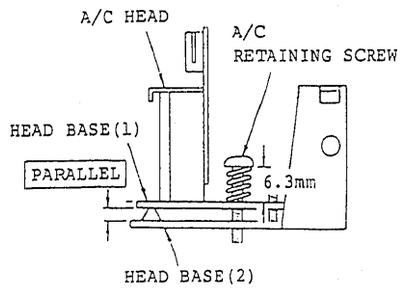
5. Audio/Control (A/C) Head Adjustment

Purpose: To keep the contact between the tape and head even so the specified track is recorded and played back.

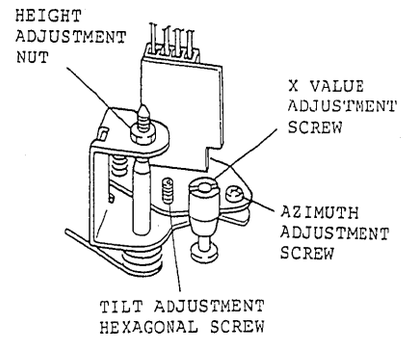
- Coarse Adjustment -

Test Equipment/Jigs	Preparation for Adjustment	State of VTR	Adjustment Points
o Master plane (Parts No. 7099279) o Reel disk height jig (Parts No. 7099038) o 1.5mm hexagonal wrench	1) Remove the cassette loading mechanism. 2) Mount the master plane.	—	o A/C head retaining screw o Azimuth adjustment screw o Height adjustment nut o Tilt adjustment hexagonal screw
o Blank tape		o Run the blank tape	

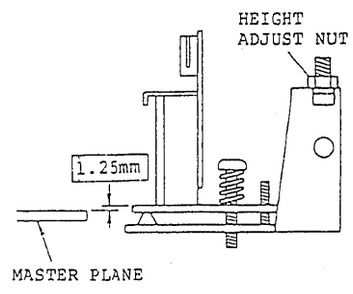
Adjustment procedure/adjustment diagrams
1) A/C head retaining screw: Check that the spring section of the A/C head retaining screw protrudes 6.3mm over the top of head base (1).



2) Tilt adjustment hexagonal screw, azimuth adjustment screw: Make head bases (1) and (2) parallel.

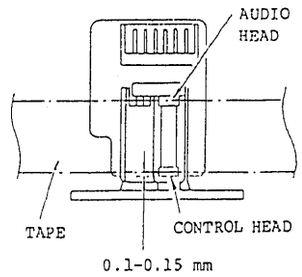


3) Height adjustment nut: Set the clearance between the master plane and head base (1) to approx. 1.25 mm.



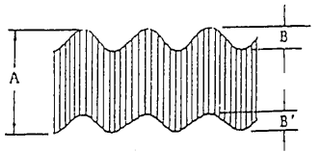
4) Remove the adjustment jigs, load blank take and set the VTR to the play mode.

5) Check that there is no conspicuous curling and riding over around the A/C head. If there is conspicuous curling or riding over, readjust the tilt adjustment hexagonal screw, azimuth adjustment screw and height adjustment nut. When the bottom edge of tape is 0.1 to 0.15 mm from the bottom edge of the control head's core, the height of A/C head is ideal.

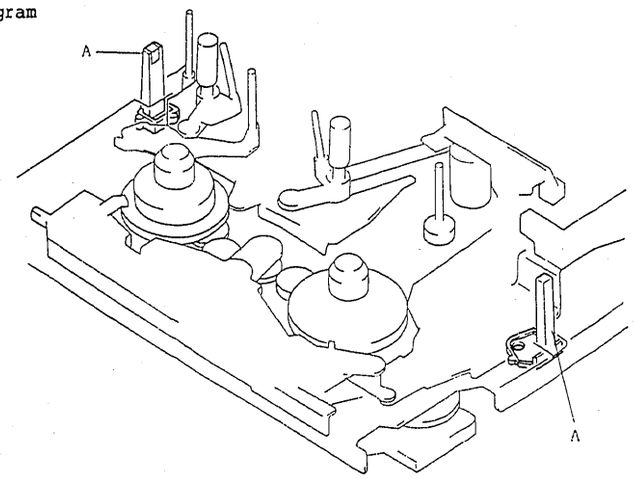


6) Perform the precise adjustment continuously.

- Precise Adjustment -

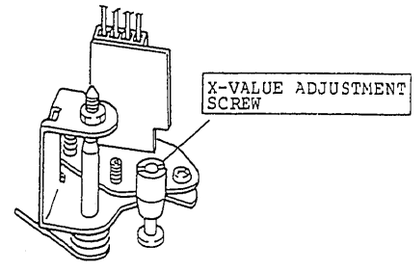
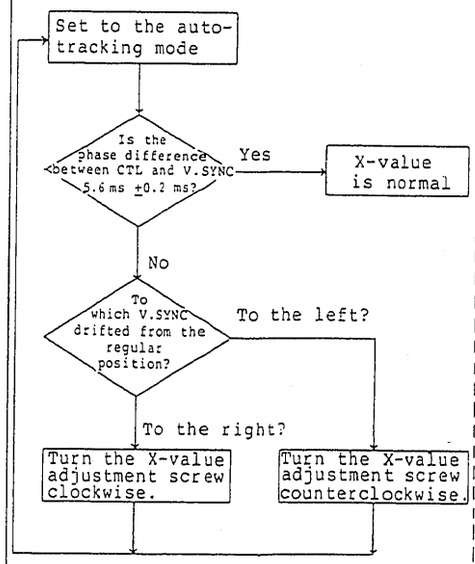
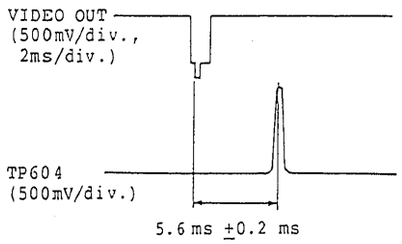
Test Equipment/Jigs	Test Equipment Connection Point	State of VTR	Adjustment Points
o Oscilloscope	o Audio output jack	o Play alignment tape (7kHz section of 30HMP2-1 or MH-1)	o Azimuth adjustment screw o Height adjustment nut o Tilt adjustment hexagonal screw
o Alignment tape (30HMP2-1 or MH-1) (Parts No. 7099046 or 7099089) o 1.5mm hexagonal wrench	—		
Adjustment procedure 1) Adjust the azimuth adjustment screw, height adjustment nut and tilt adjustment hexagonal screw slightly and alternately. Make the audio output maximum and flat (minimum fluctuations).		Waveform diagram  A: Maximum BB': Minimum	

6. To set VTR to the loading state without inserting a cassette

1) Remove the top cover and front panel. 2) Remove the cassette loading mechanism. 3) Unplug the power cord form the AC outlet. 4) Cover the supply and take-up end sensors (sections A in the figure below) with black masking tape, etc. to shut off the light. 5) Plug the power cord into the AC outlet. 6) Turn the VTR on. The VTR can accept the inputs of each mode in this state. However, the rewind operation cannot be performed for more than a few seconds because the take-up reel disk is in the stop state and reel pulses cannot be detected.	(Cautions) Always return the VTR to the original state in the following order after the above operations have been performed. 1) Remove the masking tape, etc. from the supply and take-up end sensors. 2) Unplug the power cord from the AC outlet to reset the system control micro-processor.
Adjustment diagram 	

7. X Value Adjustment

Purpose: To make compatible with other VTRs.

Test Equipment/Jigs	Test Equipment Connection Points	State of VTR	Adjustment Point
o Oscilloscope	o CH-1: VIDEO OUT o CH-2: TP604 (CTL)	o Play alignment tape (step waveform if MH-1 alignment tape is used).	o X value adjustment screw
o Aligment tape (30HMP2-1 or MH-1) (Parts No.7099046 or 7099089) o 1.5mm hexagonal wrench	---		
Connection diagram See page 4-11 for the connection 2 of test equipment.			
Adjustment procedure Adjust so that the phase different between the CTL pulse (positive pulse) and the V.SYNC component in the video signal is 5.6ms ± 0.2 ms when the autotracking function operates. 			

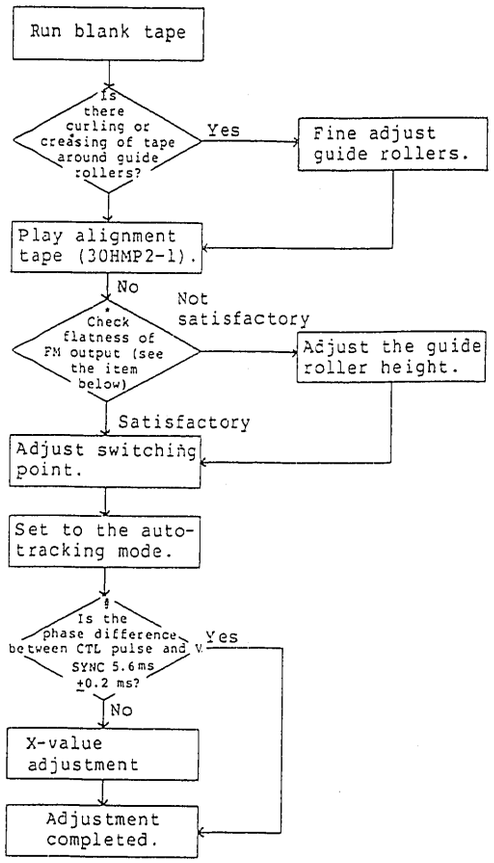
8. Adjustments After Replacing Cylinder (Video Heads)

Purpose: To suppress drift in the height relative to the guide roller and drift of the X value after replacing the cylinder.

Test Equipment/Jigs	Test Equipment Connection Points	State of VTR	Adjustment Points
o Oscilloscope	Checking the flatness o CH-1: TP1851 o CH-2: TP605	o Run the blank tape o Play alignment tape	o Guide rollers (precise adjustment on page 4-5) o Switching point (page 3-8) o X value (page 4-8)
o Alignment tapes 30HMP2-1 or MH-1 (Parts No.7099046) (Parts No.7099089) o Blank tape o 1.5mm, 0.9mm hexagonal wrench o X value adjustment screwdriver	—		

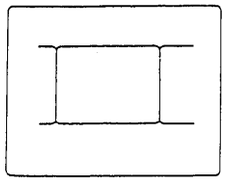
Checking/adjustment procedure

Connect test equipment referring to connection diagram 1 on page 4-11 when checking the item marked *.
Connect test equipment referring to connection diagram 2 on page 4-11 when checking the item marked #.

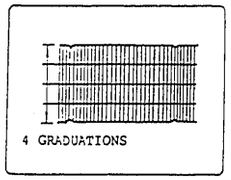


Checking procedure of the flatness and fluctuations of FM output and waveform diagrams

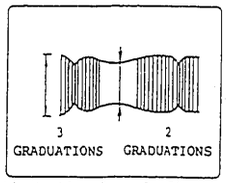
1) Set to the autotracking mode.



2) Fine tune the voltage level range of the oscilloscope to set the FM output to 4 graduations.



3) Press the tracking control buttons to set maximum amplitude of the FM output to 3 graduations.
4) Check that the minimum amplitude is more than 2 graduations.



5) Check that the level fluctuations between the maximum and minimum amplitudes are less than 13%.

9. Tension/Torque Checks

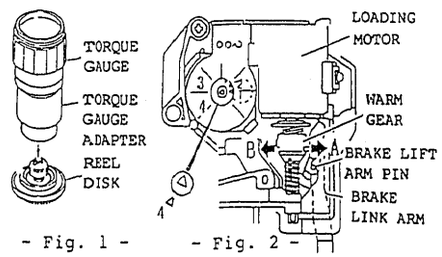
Purpose: It is necessary to check the tension, torque and compression force at the tape take-up section and moving section to make the tape running smooth and satisfy the basic performane of the VTR. Check these if the tape running is not smooth or the tape speed is abnormal.

Test Equipment/Jigs	State of VTR
o Torque gauge o Torque gauge adapter	o See the VTR to the operation modes without inserting a cassette. (See page 4-7)

Item	VTR operation mode	Measured reel	Measured value
Main brake torque	Stop (Note-1)	Supply & take-up reels	50g.cm or more
Slack removal torque	Unloading	Supply reel	90 - 250g.cm
Fast forward torque	Fast forward	Take-up reel	400g.cm or more
Rewind torque	Rewind	Supply reel	400g.cm or more
Take-up torque	Play	Take-up reel	70 - 170g.cm
Back-tension torque	Fast forward	Supply reel	1 - 20g.cm
	Rewind	Take-up reel	

Checking method
The values are measured using a torque gauge and torque gauge adapter with the torque gauge fixed. (Fig. 1)
Note-1 (Fig. 2)
Turn the worm gear in the direction of arrow (A) in the stop mode and shift the pointer on the mechanism state switch to "3" so as to apply the main brake to the supply reel disk. Then turn the worm gear in the direction of arrow (B) so that the brake link arm is released from brake lift arm pin (set the reel drive idler to the center position).

Adjustment diagram



- Fig. 1 - - Fig. 2 -

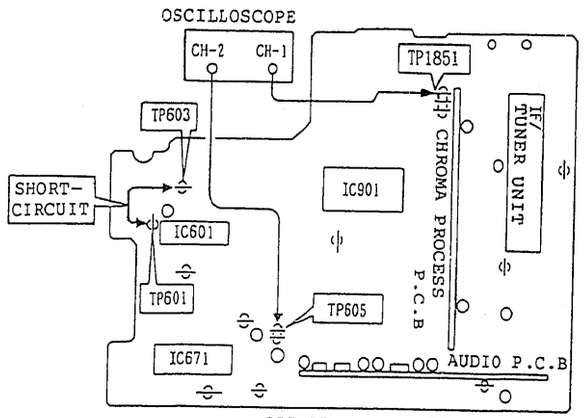
10. Connection Diagram

Connect test equipment as shown below when performing the guide roller height adjustment (precise adjustment) and adjustments after replacing the cylinder (video heads).

Connection diagram 1

o Test mode
Connect TP601 and TP603.

(Oscilloscope Settings)
o Trigger with CH-2.
o Set the sync slope to "-".



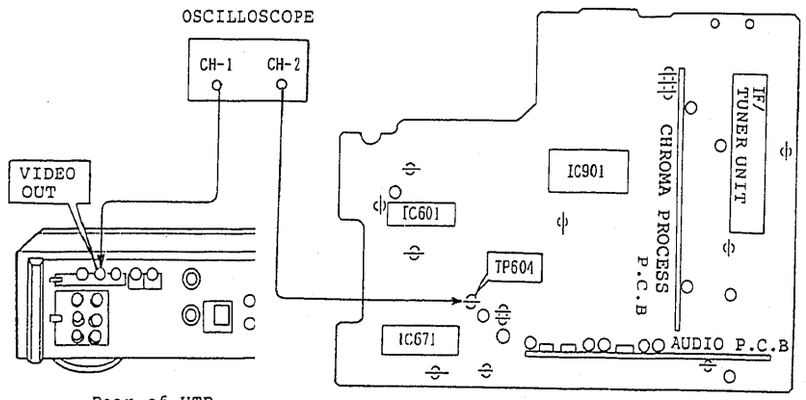
o Caution when performing mechanism adjustment

1. To set the test mode

Connect TP601 and TP603 on the SSJ circuit board to set the servo circuit to the EP play mode (test mode).

Perform the connections below when adjusting the X-value.

Connection diagram 2



MAINTENANCE/INSPECTION PROCEDURE

1. Required Maintenance

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise, at tolerances of 1/1000 mm, to ensure compatible with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure a good picture, periodic inspection and maintenance, including replacement of worn-out parts and lubrications, is necessary.

2. Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they are greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used. But, in general home use, a good picture will be maintained if the inspection and maintenance is done every 1,000 hours. The table below shows the relation between time used and inspection period.

Table 1

Average hours used per day	When inspection is necessary: About 1 year	About 18 months	About 3 years
One hour	▨	▨	▨
Two hours	▨	▨	
Three hours	▨		

3. Check before starting Repairs

The following faults can be remedied by cleaning and oiling. Check the need for lubrication and the conditions of cleanliness in the unit. Check with the customer to find out how often the unit is used. If from that you determine that the unit is ready for inspection and maintenance, check the following parts.

Table 2

Phenomenon	Inspection Location
Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, reel belt or flywheel belt
Vertical jitter horizontal jitter	Dirt on video head or in tape transport system
Color beats	Dirt on full-erase head
Low volume or sound distorted	Dirt on audio/control head
Fast forward or rewind is not done or rotation is slow	Dirt on reel belt

4. Tools Needed for Inspection and Maintenance

(1) Head cleaning kit
(2) VCR oil kit
(3) Alcohol
(4) Gauze
(5) Screwdriver for adjusting X-value

Table 3 Locations for Greasing and Oiling using the Kit

Name	Oil or Greasing Location
Sonic Slidas Oil (#1600)	Oil low-speed rotating sections
Froil (GB-TS-1)	Lubricate metal or molded sections under light load
Lock paint	Fix adjustment screws

The above oils and greases are in the kit prepared especially for VCR maintenance. Use this kit for lubrication.

5. Maintenance Procedures

5-1 Cleaning

(1) Cleaning video head

First use a cleaning tape. If dirt on head is too stubborn to remove by tape, use the cleaning kit. Moisten the cleaning stick with cleaning fluid at the point indicated. Touch the stick to the head tip and gently turn the head (rotating cylinder) to the right and left. (Do not move the stick vertically and make sure that only the chamois leather on the stick comes into contact with the head. Otherwise, the head may be damaged.)
Thoroughly dry the head. Then test run a tape. If cleaning fluid remains on the video head, the tape may be damaged when in comes into contact with the head surface.

(2) Cleaning the tape transport system and drive system, ect.

Wipe with gauze moistened with alcohol.

Notes:
1) The tape transport system is the system which comes into contact with the running tape. The drive system consists of those parts which run the tape.
2) Make sure that during cleaning you do not touch the tape transport system with the tip of a screwdriver and that no force is applied to the system that could deform it.

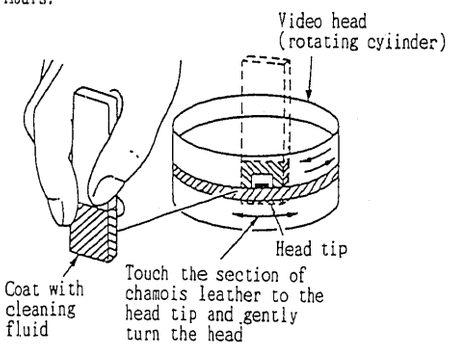
5-2 Lubrication

(1) Guidelines for lubricating with oil

Use the oiler to apply one or two drop of Sonic Slidas oil. Make sure not to use too much oil because it may spill over or leak out coming into contact with rotating parts and causing slippage or other problems. If too much oil is applied, wipe clean with alcohol.

(2) Periodic oil lubrication

Oil specified locations every 1,000 hours.


Video head
(rotating cylinder)
Head tip
Coat with cleaning fluid
Touch the section of chamois leather to the head tip and gently turn the head

5-3 Greasing

(1) Greasing guidelines

Apply grease Froil, with a stick or brush. Do not use excess grease. It may come into contact with the tape transport or drive system. Wipe any excess and clean with gauze moistened with alcohol.

(2) Periodic greasing

Grease specified locations every 5,000 hours.

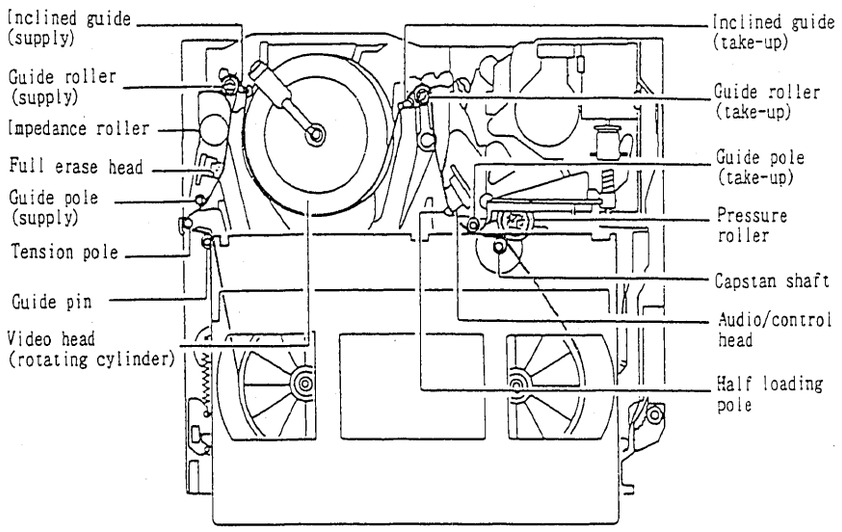


Fig. 1 Tape Transport System

6. Inspection Locations

Phenomenon	Inspection Location	Replacement	
Color beats	Dirt on full erase head		①
Poor S/N, no color	Dirt on video heads	○	②
Vertical jitter	Dirt on video heads Dirt in tape transport system		③
Low volume, sound disordered	Dirt on audio/control head	○	④
Tape does not run. Tape is slack.	Dirt on pressure roller	○	⑤

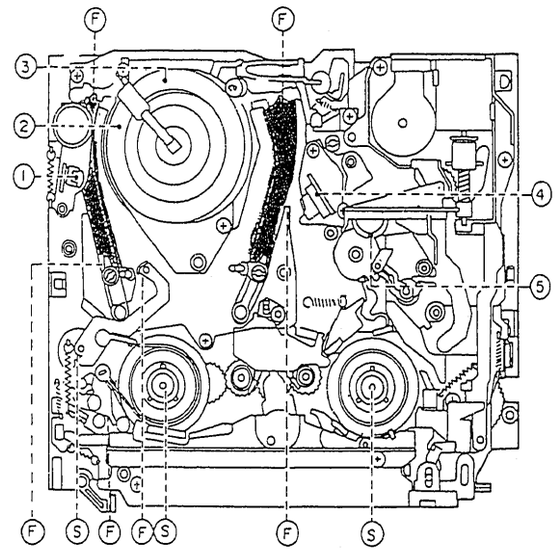
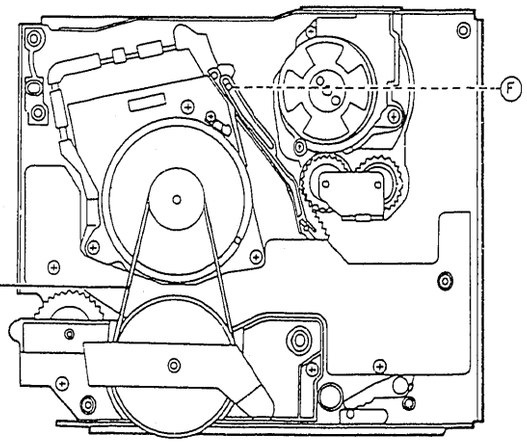


Fig. 2 Top View of Mechanism

Phenomenon	Inspection Location	Replacement
Does not fast forward or rewind, or rotation is slow	Dirt on reel belt	○
Tape dose not run		
Slack tape		



Note:
If locations marked with "○" do not operate normally after cleaning, they are worn. Replace.
See the EXPLODED VIEWS at the end of this manual as well as the above illustrations for the sections to be lubricated and greased.

Fig. 3 Bottom View of Mechanism

(S) : Sonic Slidas oil (oil locations)

(F) : Froil (grease locations)

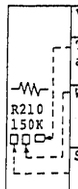
CHAPTER 5

SCHEMATIC/CIRCUIT BOARD DIAGRAMS

BEFORE USING THIS SERVICE REFERENCE MATERIAL

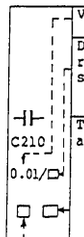
How to read abbreviations

(Resistors)



Value		Not indicated .. Ω(ohm) K ..... kΩ
Tolerance		Not indicated .. ±5% K ..... ±10% M ..... ±20%
Wattage		Not indicated .. 1/8W (All values other than 1/8W are indicated in the schematic diagrams with W omitted)
Sort		Not indicated .. Carbon film RC ..... Carbon solid RW ..... Wire wound RS ..... Metal oxide film RN ..... Metal film
Example: R120 ..... 150kohm, carbon solid RC1/2K 1/2W, ±10%		

(Capacitors)



Value		Not indicated .. μF P ..... PF
Dielectric strength		Not indicated .. 50WV (All values other than 50WV and electrolytic capacitors are indicated in the schematic diagrams with WV omitted)
Tolerance		Not indicated .. ±10% J ..... ±5% M ..... ±20% C ..... ±0.25PF Z ..... +80% -20% (No tolerance is indicated for electrolytic capacitors (excluding tantalum and high stability electrolytic capacitors))
Sort		Not indicated .. Ceramic General electrolytic (distinguished from ceramic with circuit symbol) MYL ..... Mylar (polyester film) STY ..... Styrol TA ..... Tantalum KU ..... High stability electrolytic MP ..... Metalized paper
Example: C210 0.01/25 ... Mylar, 0.01μF, 25WV, ±5% MYL J		

Notes:

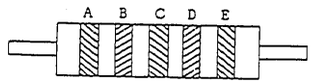
1. Voltages are measured with the negative ⊖ terminal of the power supply as reference in the normal operating mode. The voltages in different modes are indicated in the schematic diagrams; those in parentheses ( ) are in the record mode and those without parentheses are in the play mode.
2. The value, dielectric strength (wattage), tolerance and sort of resistors (excluding variable resistors, etc.) and capacitors are indicated in the schematic diagrams by abbreviations. Replace them correctly, comparing the abbreviations in the schematic diagrams and the table "how to read abbreviations".

Cautions on use of MOS IC

1. The MOS IC is inserted in black foam for shipment. This foam is a conductor which short-circuits between the leads to prevent damage. Do not remove ICs from this foam during their storage. Avoid removing ICs from this foam, placing them on plastic which is likely to be charged with static electricity or inserting them into styrol foam.
2. High voltages may be applied during soldering caused by leakages from the soldering iron, so be sure to ground the tip of the soldering iron or use a low voltage soldering iron.
3. The human body, clothes made of synthetic fibers or nylon gloves may be charged with several thousands volts of static electricity because of friction, so a worker should be grounded.
4. Be sure to ground measuring instruments such as oscilloscopes, VTVMs, etc. used for repairs.

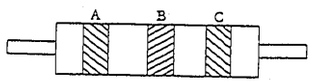
How to read capacity and inductance of resistor shape capacitors and coils

CAPACITOR



CAPACITY: (10A+B) x C (PF)
TOLERANCE: D
RATED VOLTAGE: BODY COLOR
PINK: 25V
GREEN: 50V
CHARACTERISTICS: E

COIL



INDUCTANCE: (10A+B) x C (μH)

COLOR	A,B	C	D	E
Black	0	10^0	±20%	For temperature compensation
Brown	1	10^1		
Red	2	10^2		
Orange	3	10^3		
Yellow	4	10^4		
Green	5	10^5		
Blue	6			
Violet	7			
Gray	8		±30%	High dielectric constant type
White	9			For temperature compensation
Gold		10^{-1}	±5%	
Silver		10^{-2}	±10%	High dielectric constant type

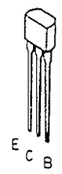
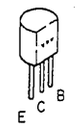
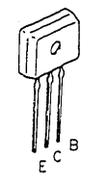
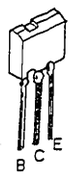
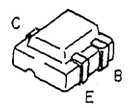
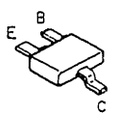
SERVICE MANUAL ABBREVIATION LIST

A	
A.DUBB	Audio Dub
ACC	Automatic Color Control
ACK	Automatic Color Killer
ADD	Adder
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
ALC	Automatic Level Control
ASBL	Assemble (Phase Matching)
APC	Automatic Phase Control
AUX	Auxiliary
B	
BATT.	Battery
BG	Burst Gate
BGP	Burst Gate Pulse
BH	Power Supply for Selecting VHF High Band
BL	Power Supply for Selecting VHF Low Band
BPF	Band-pass Filter
BS	Power Supply for Selecting VHF Super Band
BU	Power Supply for Selecting UHF Band
BUF.	Buffer Amplifier
C	
C	Chroma
C.FG/CFG	Capstan Frequency Generator
C.MEMORY	Counter Memory
C.PAUSE	Camera Pause
C.RESET	Counter Reset
C.REVERSE	Count Reverse
C.SYNC	Composite Synchronizing Signal
C/R	Capacitor/Resistor
CATV	Cable TV
CAPST.	Capstan
CCD	Charge Coupled Device
CH	Channel
CHAR.	Character
COM.	Common
COMP-EXP	Compressor-Expander
COMP.	Comparator
COMPE	Compensator
COM.	Composite
COUNT.	Counter
CST	Cassette
CTL	Control Track Pulse
CYL.	Cylinder
D	
D/A	Digital to Analog
DEEMPH.	Deemphasis
DEMOD.	Demodulator
DET	Detector
DISP	Display
DL	Delay line
DN	Down
DO	Dropout
DOC	Dropout Compensator
E	
E-E	Electronic-to-Electronic
EA-ROM	Electrically Alterable Read Only Memory
EMPH	Emphasis
EQ	Equalizer
EXT.	External
F	
FF	Flip Flop
F.FWD	Fast Forward
FG	Frequency Generator
FM	Frequency Modulation
FRAME ADV./F.ADV	Frame Advance
fsc	Sub Carrier Frequency
FWD	Forward
G	
GEN	Generator
GND	Ground
H	
HD	Horizontal Drive
Hi-Fi	High Fidelity
HPF	High-pass Filter
HPL	High-pass Limiter
HSS	Horizontal Sync. Separator
I	
I/O	In/Out
IF	Intermediate Frequency
INDI.	Indicator
INT.	Internal
INV.	Inverter
IR	Infrared Rays
IRT	Instant Recording Timer
L	
LCD	Liquid Crystal Display
LIN.	Linear
LM	Loading Motor
LOG.	Logarithm
LPF	Low-pass Filter
L/R	Left/Right
LP	Long Play
M	
M.CUT	Monitor Cut
M.STATE	Mechanism State
M.STOP	Memory Stop
MEM.	Memory
MIX	Mixer
MM	Monostable Multivibrator
MOD.	Modulator
MPX	Multiplex
N	
NF	Negative Feed Back
NORM.	Normal
NR	Noise Reduction
O	
OSC	Oscillator
OSD	On-Screen Display
P	
PB/PLAY	Playback
PIF	Picture Intermediate Frequency
PLL	Phase Locked Loop
POS.	Positive
POWER CONT.	Power Control
PROG.	Programme
PROTECT.	Protector
PWM	Pulse Width Modulation
R	
REC	Record
RECT.	Rectifier
REF	Reference
REG	Regulator
REV	Reverse
REW	Rewind
RF	Radio Frequency
RAM	Random Access Memory
ROM	Read Only Memory
S	
S/H	Sample and Hole
S.REEL	Supply Reel Sensor
S.TRACK.	Slow Tracking
S-VHS	Super VHS
SAW	Sawtooth
SEP.	Separator
SIF	Sound Intermediate Frequency
SP	Standard Play
SRCH	Search
SRV	Servo
SW 30Hz	Head Switching Pulse
SYNC	Synchronizing Signal
SYS.CON	System Control
T	
T/L	Tuner/Line
T.BRAKE	Take-up Brake
TμP	Timer Microprocessor
T.REEL	Take-up Reel Sensor
T.RESET	Timer Reset
TP	Test Point
TRS	Transfer
TU-μP	Tuning Microprocessor
U	
U/D	Up/Down
UNI.	Unified
V	
V-REF	Voltage Reference
V.DRV	Vertical Drive Pulse
V.DUB	Video Dub
VCO	Voltage Controlled Oscillator
VHS	Video Home Systems
Vss	Voltage Super Source
VOL.	Volume
VSS	Vertical Sync. Separator
VT	Tuning Voltage
VT-U	Tuning Voltage-UHF
VT-V	Tuning Voltage-VHF
Y	
Y/C	Luminance/Chrominance

SEMICONDUCTOR CONFIGURATION

When replacing a semiconductor, take care of its pin numbers and makings (recess, paint) so as not to insert it in reverse.

TRANSISTOR

1	2	3	4	5	6
					
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IC (SINGLE INLINE PACKAGE)

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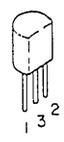	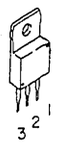	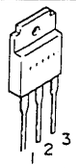	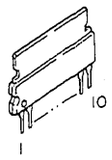	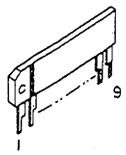
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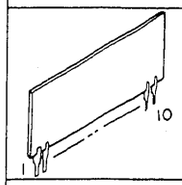
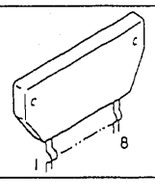
6	7
	
HT7153B	STK7271

IC (DUAL INLINE PACKAGE)

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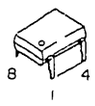	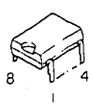	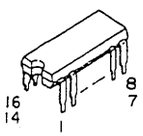	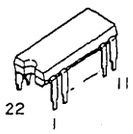	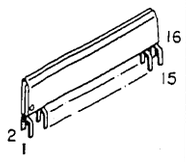
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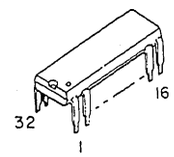	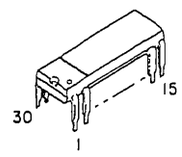	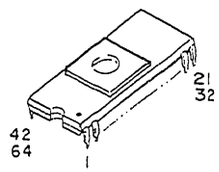	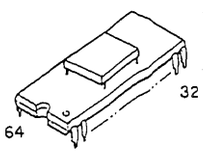
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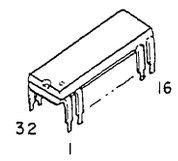
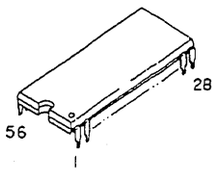
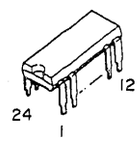
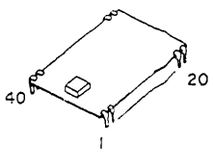
10	11	12	13
			
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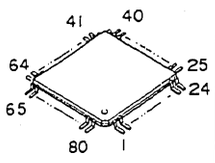
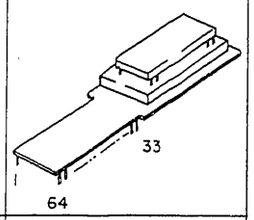
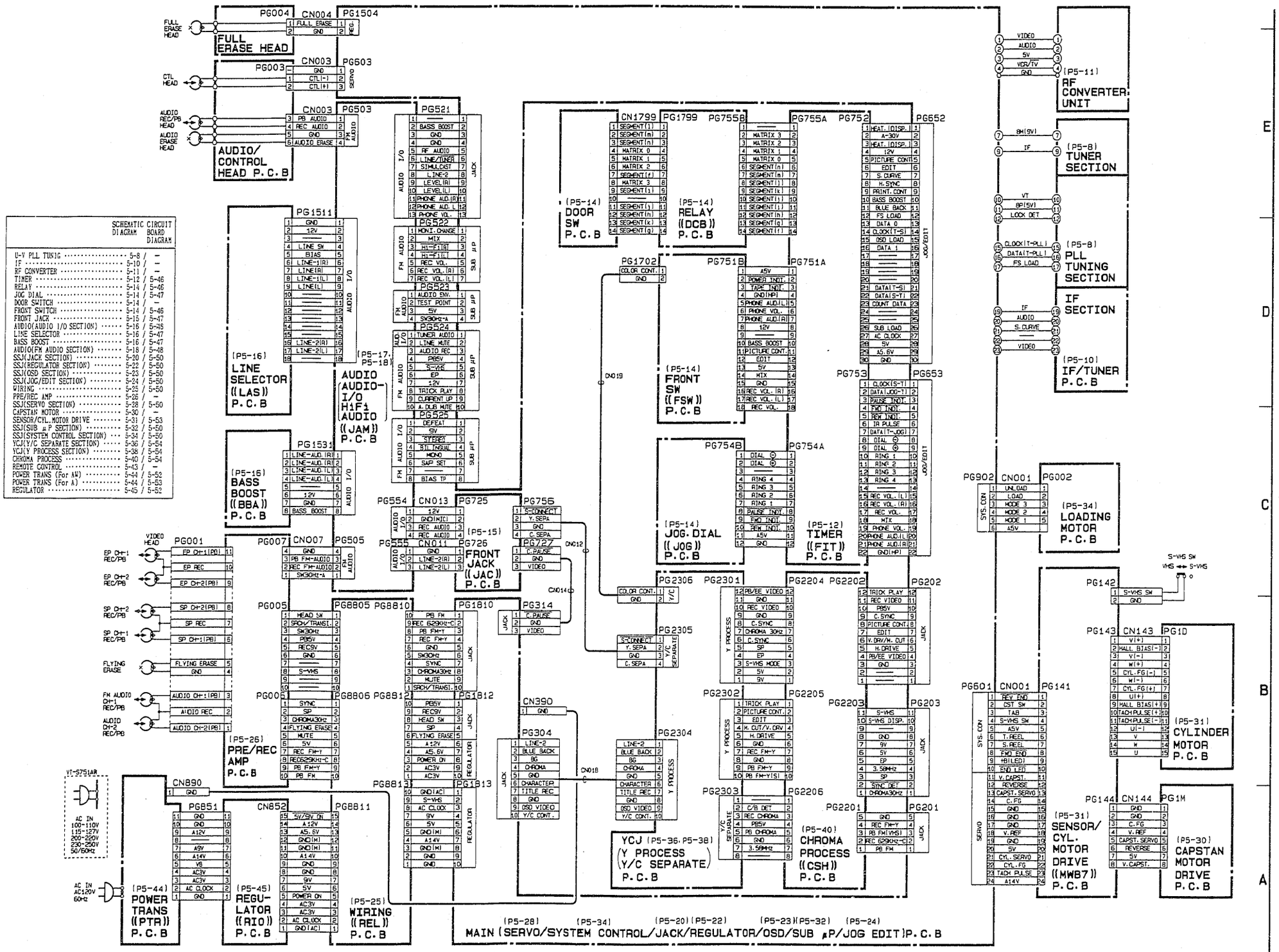
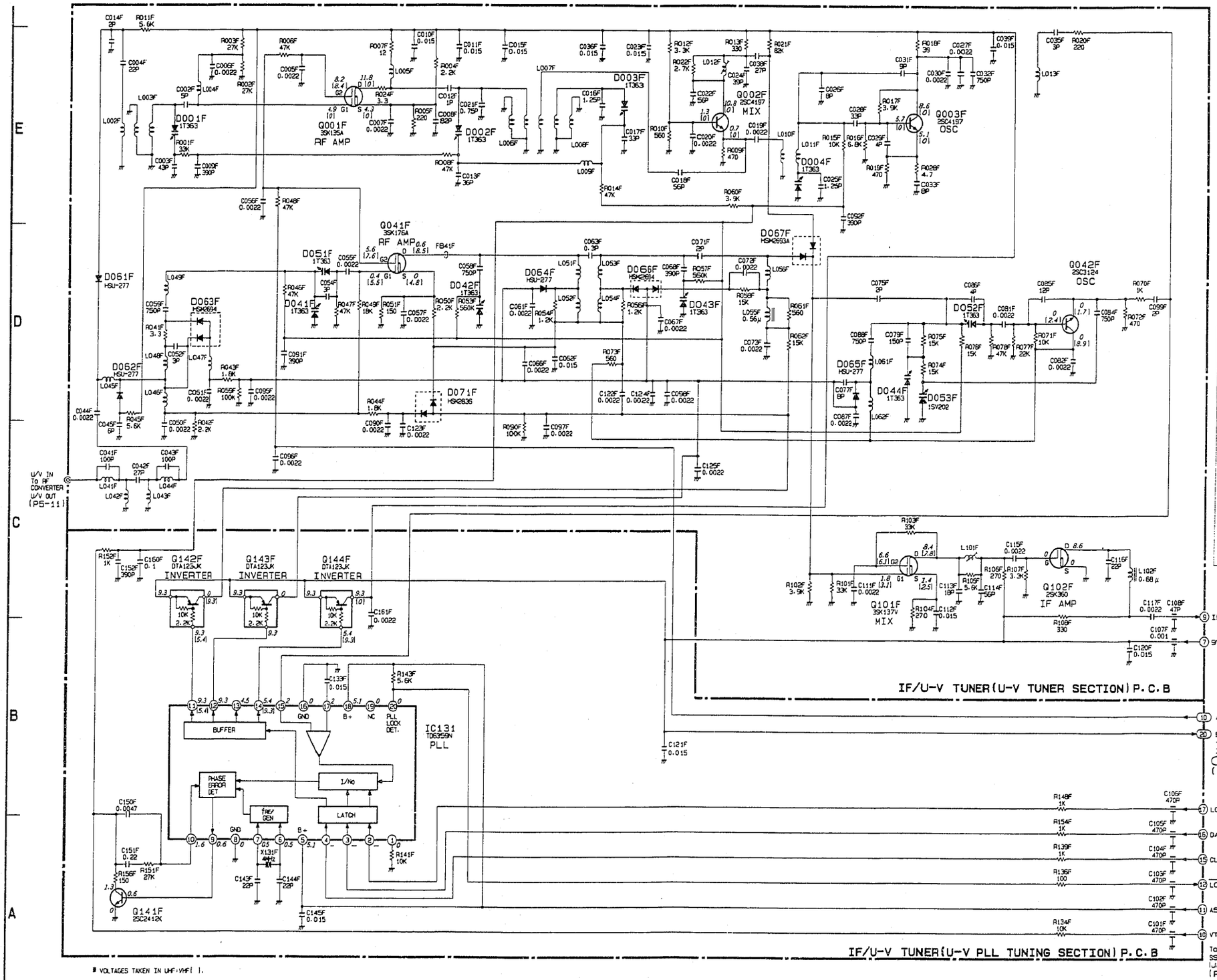
14	15
	
XRA7700K1	M50959-225SP

INTERNAL WIRING DIAGRAM

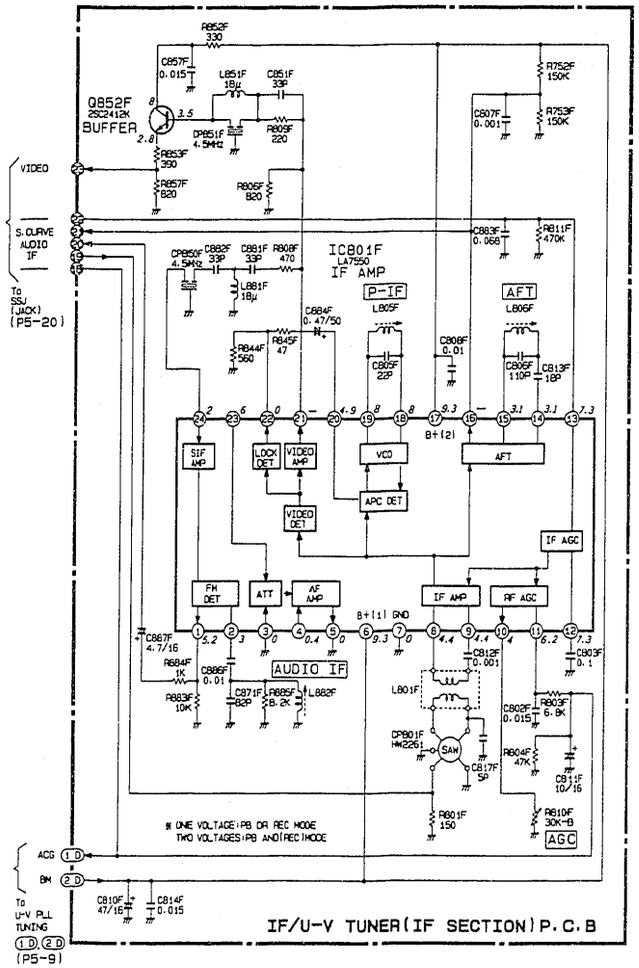

SCHEMATIC CIRCUIT DIAGRAM / BOARD DIAGRAM
U-V PLL TUNIG 5-8 / —
IF 5-10 / —
RF CONVERTER 5-11 / —
TUNER 5-12 / 5-46
RELAY 5-14 / 5-46
JOG DIAL 5-14 / 5-47
DOOR SWITCH 5-14 / —
FRONT SWITCH 5-14 / 5-46
FRONT JACK 5-15 / 5-47
AUDIO(AUDIO I/O SECTION) 5-16 / 5-48
LINE SELECTOR 5-16 / 5-47
BASS BOOST 5-16 / 5-47
AUDIO(FM AUDIO SECTION) 5-18 / 5-48
SSJ(JACK SECTION) 5-20 / 5-50
SSJ(REGULATOR SECTION) 5-22 / 5-50
SSJ(OSD SECTION) 5-23 / 5-50
SSJ(JOG/EDIT SECTION) 5-24 / 5-50
WIRING 5-25 / 5-50
PRE/REC AMP 5-26 / —
SSJ(SERVO SECTION) 5-28 / 5-50
CAPSTAN MOTOR 5-30 / —
SENSOR/CYL.MOTOR DRIVE 5-31 / 5-53
SSJ(SUB μP SECTION) 5-32 / 5-50
SSJ(SYSTEM CONTROL SECTION) 5-34 / 5-50
YCJ(Y/C SEPARATE SECTION) 5-36 / 5-54
YCJ(Y PROCESS SECTION) 5-38 / 5-54
CHROMA PROCESS 5-40 / 5-54
REMOTE CONTROL 5-43 / —
POWER TRANS (For AW) 5-44 / 5-52
POWER TRANS (For A) 5-44 / 5-53
REGULATOR 5-45 / 5-52
FULL ERASE HEAD
CTL HEAD
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
AUDIO/ CONTROL HEAD P.C.B
LINE SELECTOR ((LAS)) P.C.B
BASS BOOST ((BBA)) P.C.B
AUDIO (AUDIO-I/O HiFi AUDIO ((JAM)) P.C.B
(P5-17, P5-18)
(P5-15)
FRONT JACK ((JAC)) P.C.B
(P5-26) PRE/REC AMP P.C.B
(P5-44) POWER TRANS ((PTR)) P.C.B
(P5-45) REGU-LATOR ((RIO)) P.C.B
(P5-25) WIRING ((REL)) P.C.B
(P5-14) DOOR SW P.C.B
(P5-14) RELAY ((DCB)) P.C.B
(P5-14) FRONT SW ((FSW)) P.C.B
(P5-14) JOG. DIAL ((JOG)) P.C.B
(P5-12) TIMER ((FIT)) P.C.B
YCJ (P5-36, P5-38) (Y PROCESS Y/C SEPARATE) P.C.B
(P5-40) CHROMA PROCESS ((CSH)) P.C.B
(P5-11) RF CONVERTER UNIT
(P5-8) TUNER SECTION
(P5-8) PLL TUNING SECTION
IF SECTION
(P5-10) IF/TUNER P.C.B
(P5-34) LOADING MOTOR P.C.B
(P5-31) SENSOR/ CYL. MOTOR DRIVE ((MWB7)) P.C.B
(P5-31) CYLINDER MOTOR P.C.B
(P5-30) CAPSTAN MOTOR DRIVE P.C.B
MAIN (SERVO/SYSTEM CONTROL/JACK/REGULATOR/OSD/SUB μP/JOG EDIT) P.C.B
AC IN 100-110V 115-127V 200-220V 230-250V 50/60HZ
AC IN AC120V 60HZ
S-VHS SW
VHS ⇔ S-VHS

U-V PLL TUNING SCHEMATIC DIAGRAM

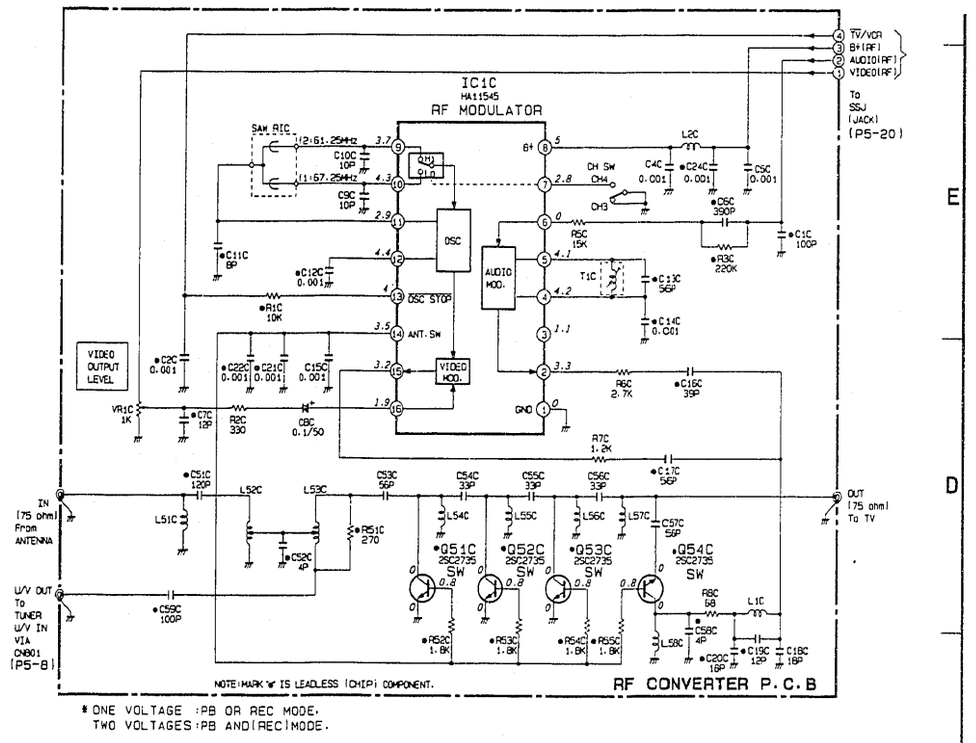


SCHEMATIC CIRCUIT DIAGRAM	SONKO DIAGRAM
U-V PLL TUNIC	5-8 / –
IF	5-10 / –
RF CONVERTER	5-11 / –
TIMER	5-12 / 5-46
RELAY	5-13 / 5-46
JOG DIAL	5-13 / 5-47
DOOR SWITCH	5-13 / –
FRONT SWITCH	5-14 / 5-46
FRONT JACK	5-15 / 5-47
AUDIO(AUDIO I/O SECTION)	5-15 / 5-48
LINE SELECTOR	5-16 / 5-47
BASS BOOST	5-16 / 5-47
AUDIO(FM AUDIO SECTION)	5-18 / 5-48
SSJ(JACK SECTION)	5-20 / 5-50
SSJ(REGULATOR SECTION)	5-20 / 5-50
SSJ(OSD SECTION)	5-20 / 5-50
SSJ(JOG/EDIT SECTION)	5-21 / 5-50
WIRING	5-25 / 5-50
PRE/REC AMP	5-26 / –
SSJ(SERVO SECTION)	5-28 / 5-50
CAPSTAN MOTOR	5-30 / –
SENSOR/CYL.MOTOR DRIVE	5-31 / 5-50
SSJ(SUB μP SECTION)	5-32 / 5-50
SSJ(SYSTEM CONTROL SECTION)	5-34 / 5-50
Y/C(Y/C SEPARATE SECTION)	5-36 / 5-54
Y/C(Y PROCESS SECTION)	5-38 / 5-54
CHROMA PROCESS	5-40 / 5-54
REMOTE CONTROL	5-42 / –
POWER TRANS (For AK)	5-44 / 5-53
POWER TRANS (For AJ)	5-44 / 5-53
REGULATOR	5-45 / 5-53

IF SCHEMATIC DIAGRAM

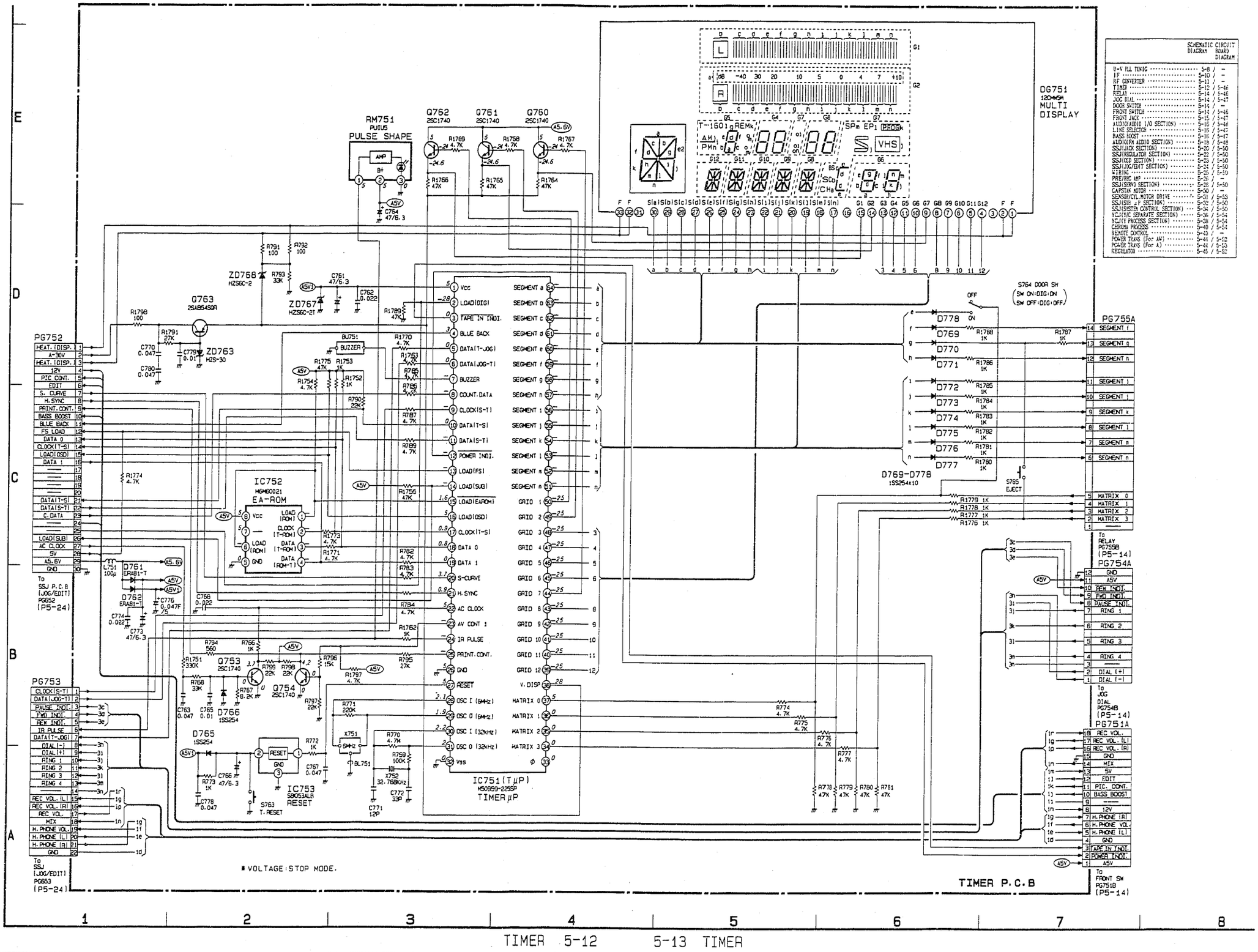


RF CONVERTER SCHEMATIC DIAGRAM



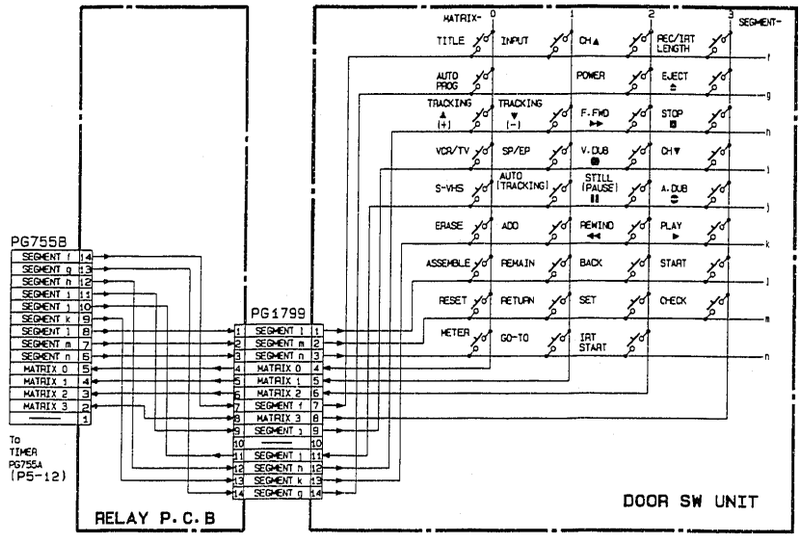
	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	–
IF	5-10	–
RF CONVERTER	5-11	–
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	–
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	–
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	–
SENSOR/CYL.MOTOR DRIVE	5-31	5-53
SSJ(SUB μP SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	–
POWER TRANS (For AW)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

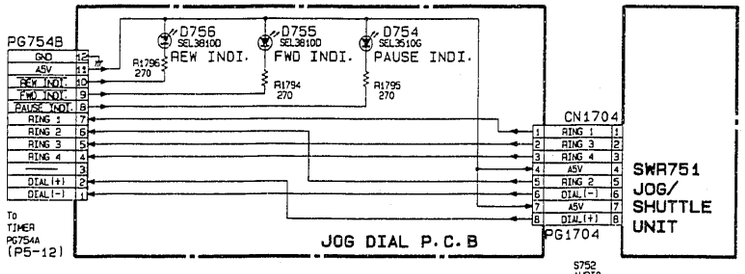
TIMER SCHEMATIC DIAGRAM

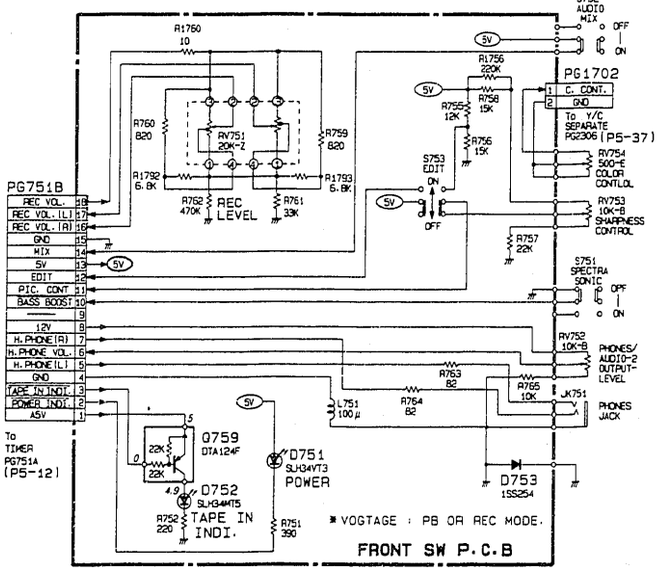


SCHEMATIC CIRCUIT DIAGRAM	BOARD DIAGRAM
U-V PLL TUNIG	5-8 / –
IF	5-10 / –
RF CONVERTER	5-11 / –
TIMER	5-12 / 5-16
RELAY	5-14 / 5-16
JOG DIAL	5-14 / 5-17
DOOR SWITCH	5-14 / –
FRONT SWITCH	5-15 / 5-16
FRONT JACK	5-15 / 5-17
AUDIO(AUDIO I/O SECTION)	5-16 / 5-16
LINE SELECTOR	5-16 / 5-17
BASS BOOST	5-16 / 5-17
AUDIO(FM AUDIO SECTION)	5-18 / 5-16
SSJ(JACK SECTION)	5-20 / 5-50
SSJ(REGULATOR SECTION)	5-22 / 5-50
SSJ(CCD SECTION)	5-23 / 5-50
SSJ(JOG/EDIT SECTION)	5-24 / 5-50
WIRING	5-25 / 5-50
PRE/REC AMP	5-26 / –
SSJ(SERVO SECTION)	5-26 / 5-50
CAPSTAN MOTOR	5-50 / –
SENSOR/CYL.MOTOR DRIVE	5-51 / 5-53
SSJ(SIG.A.P SECTION)	5-52 / 5-50
SSJ(SYSTEM CONTROL SECTION)	5-54 / 5-50
YCJ(Y/C SEPARATE SECTION)	5-56 / 5-54
YCJ(Y PROCESS SECTION)	5-58 / 5-54
CHROMA PROCESS	5-60 / 5-54
REMOTE CONTROL	5-42 / –
POWER TRANS (For AM)	5-44 / 5-50
POWER TRANS (For A)	5-45 / 5-50
REGULATOR	5-45 / 5-50

RELAY/DOOR SW/JOG DIAL/FRONT SW SCHEMATIC DIAGRAM

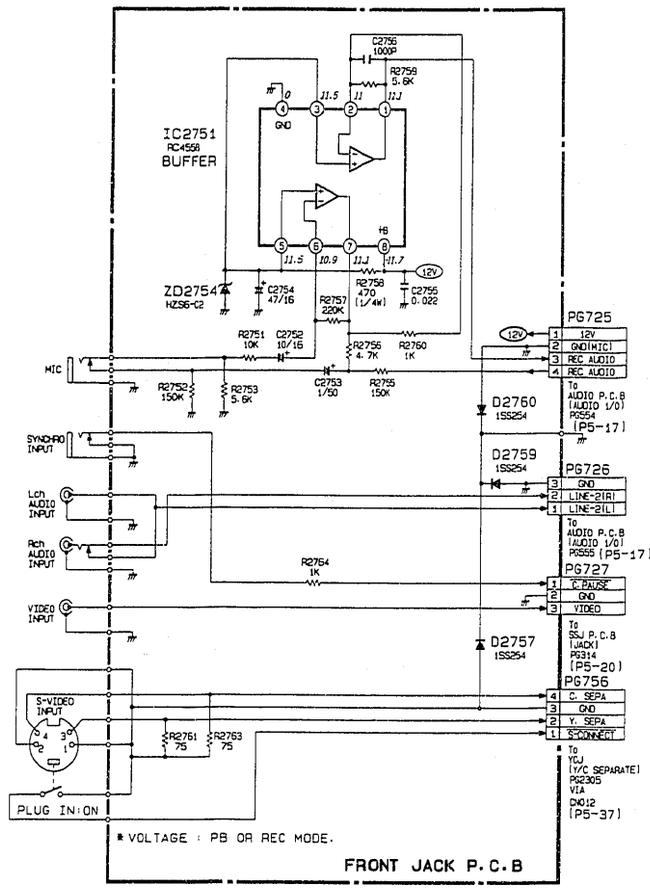






	SCHEMATIC CIRCUIT DIAGRAM	BOARD DIAGRAM
U-V PLL TUNIG	5-8	–
IF	5-10	–
RF CONVERTER	5-11	–
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	–
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	–
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	–
SENSOR/CYL.MOTOR DRIVE	5-31	5-53
SSJ(SUB μP SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	–
POWER TRANS (For AW)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

FRONT FACK SCHEMATIC DIAGRAM

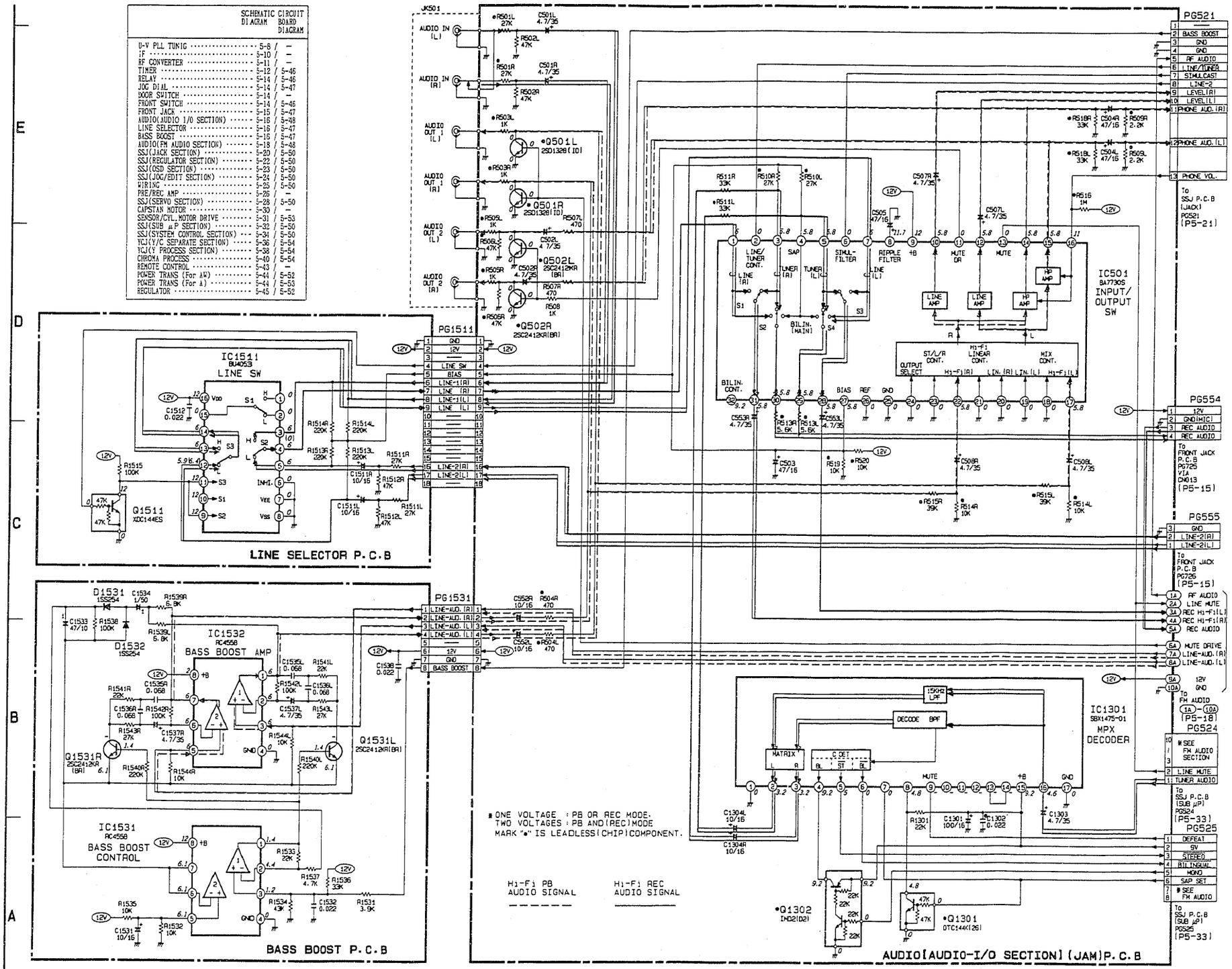


1 2 3 4 5 6 7 8

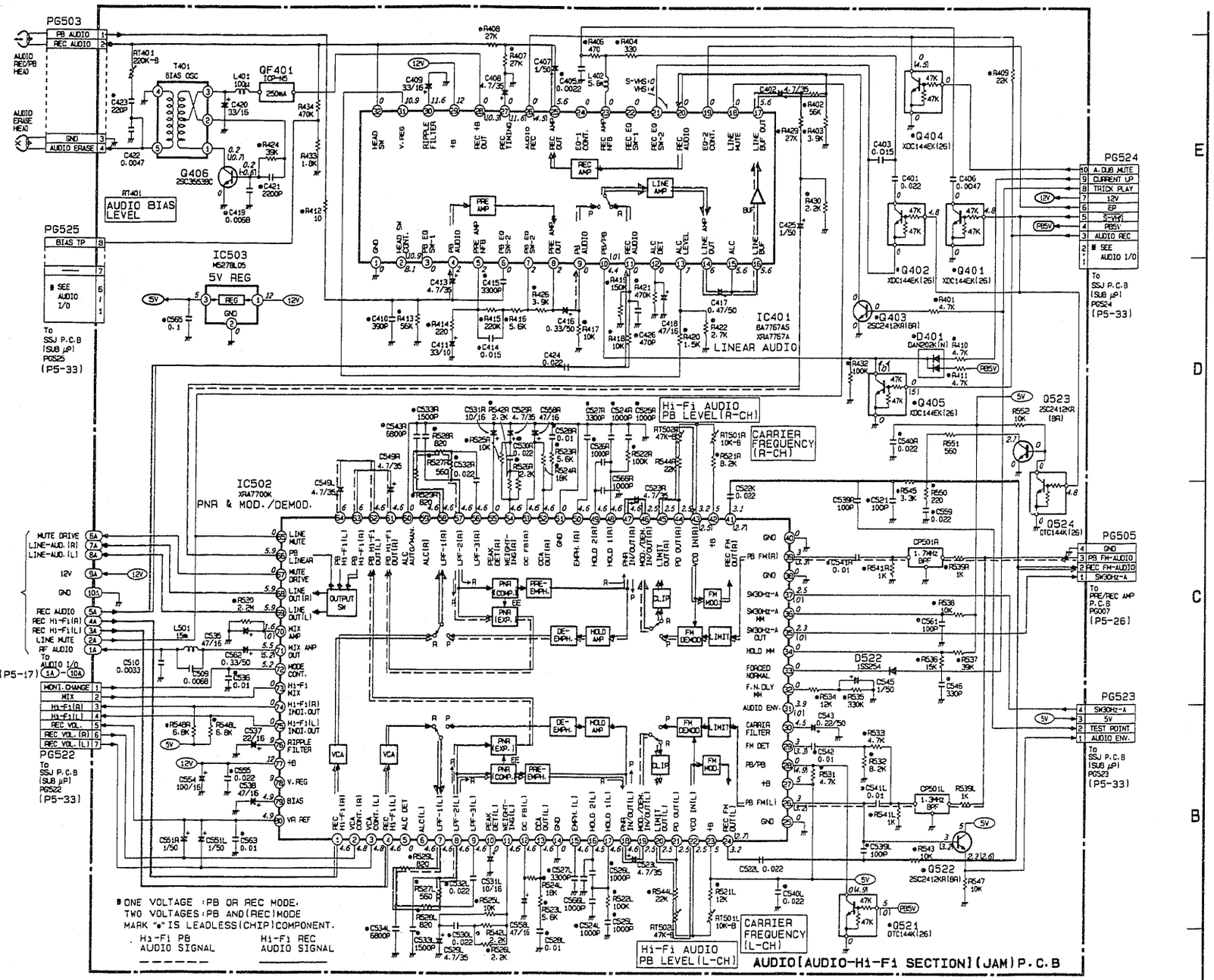
RELAY/DOOR SW/JOG DIAL/FRONT SW 5-14 5-15 FRONT JACK

LINE SELECTOR, BASS BOOST, AUDIO I/O SCHEMATIC DIAGRAM

	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	—
IF	5-10	—
RF CONVERTER	5-11	—
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	—
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	—
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	—
SENSOR/CYL.MOTOR DRIVE	5-31	5-53
SSJ(SUB μP SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	—
POWER TRANS (For AV)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

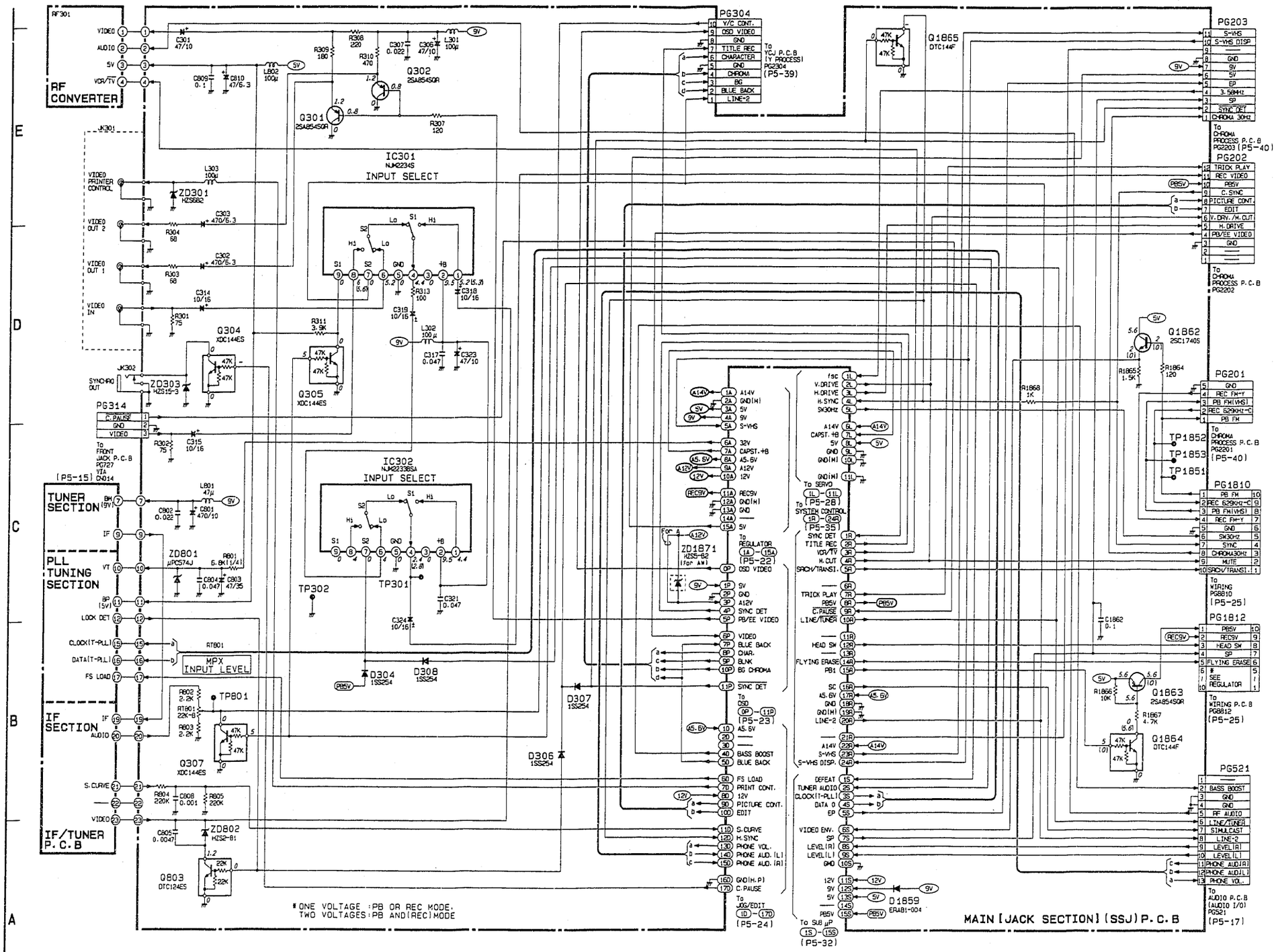


FM AUDIO SCHEMATIC DIAGRAM

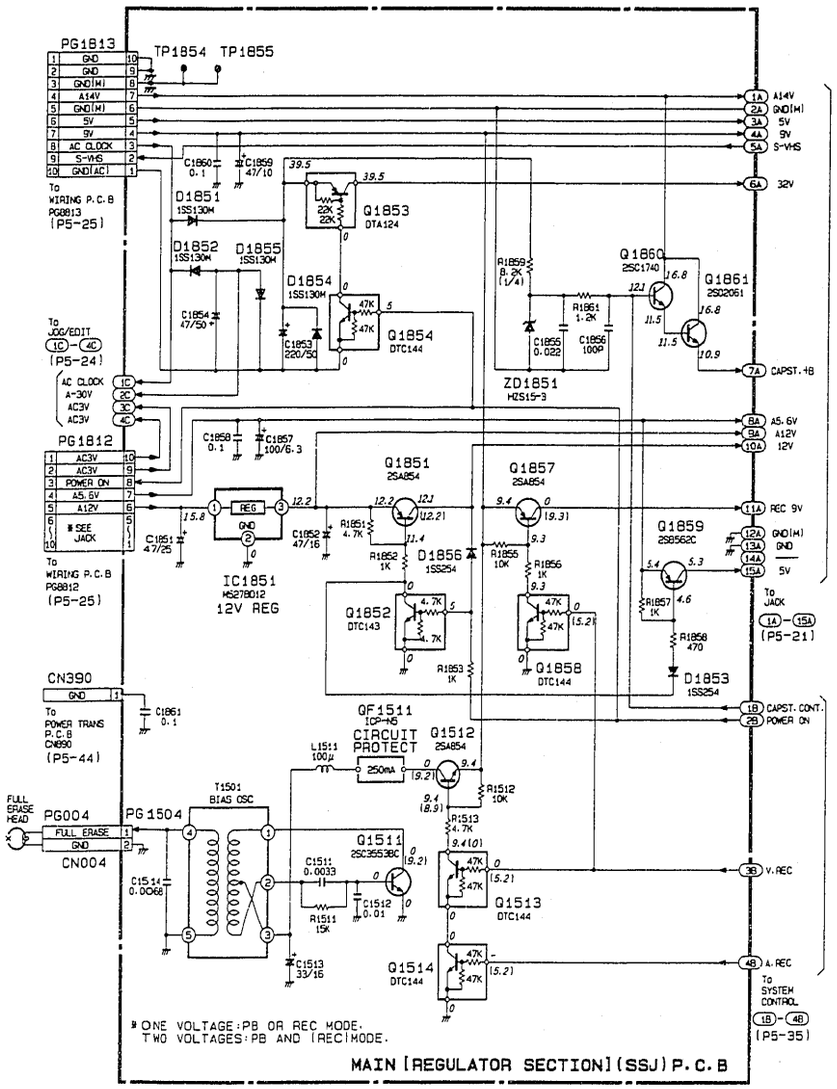


	SCHEMATIC CIRCUIT DIAGRAM	BOARD DIAGRAM
U-V PLL TUNIG	5-8	—
IF	5-10	—
RF CONVERTER	5-11	—
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	—
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	—
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	—
SENSOR/CYL.MOTOR DRIVE	5-31	5-52
SSJ(SUB μP SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	—
POWER TRANS (For AW)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

JACK SCHEMATIC DIAGRAM

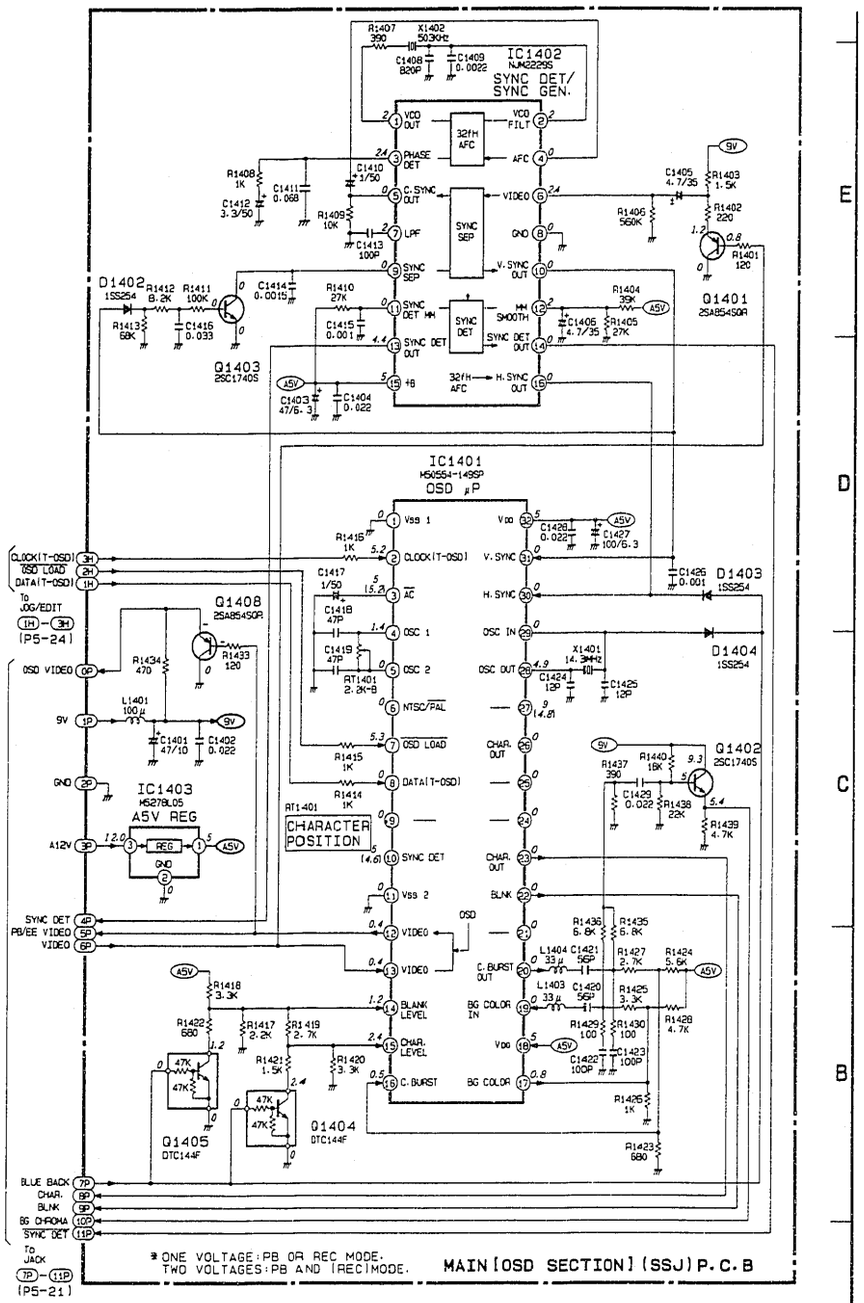


REGULATOR SCHEMATIC DIAGRAM

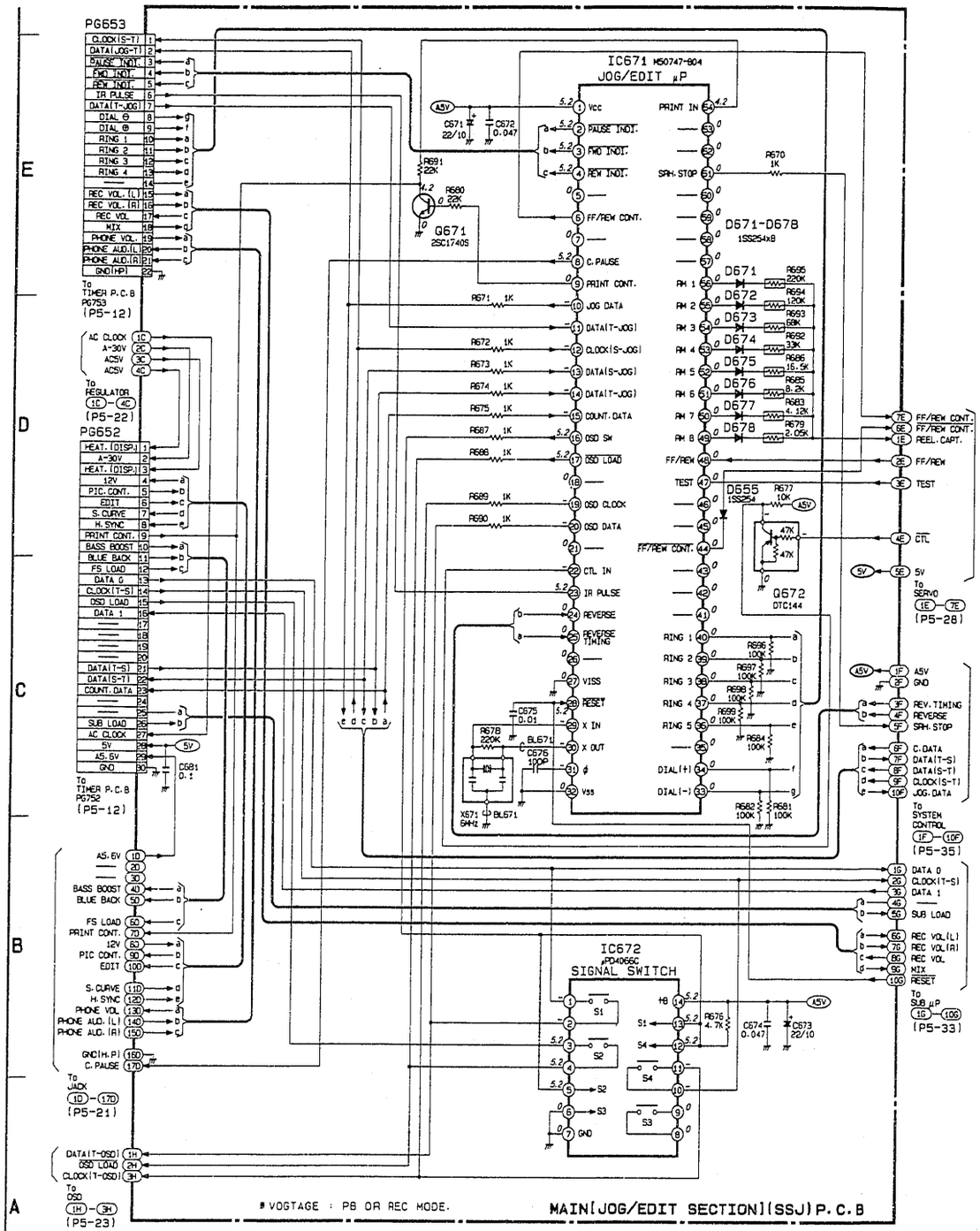


	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	—
IF	5-10	—
RF CONVERTER	5-11	—
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	—
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(PH AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-25	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	—
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	—
SENSOR/CYL.MOTOR DRIVE	5-31	5-53
SSJ(SUB μP SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	—
POWER TRANS (For AW)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

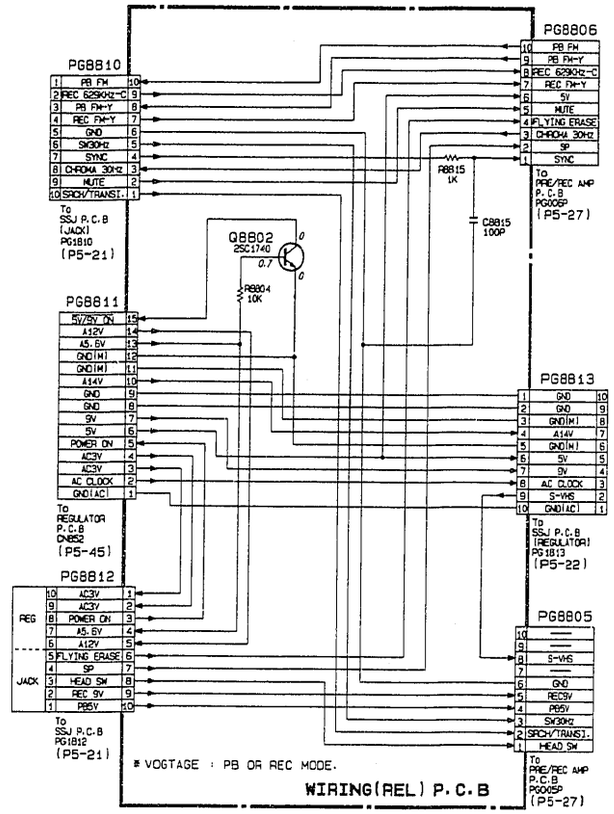
OSD SCHEMATIC DIAGRAM



JOG/EDIT SCHEMATIC DIAGRAM

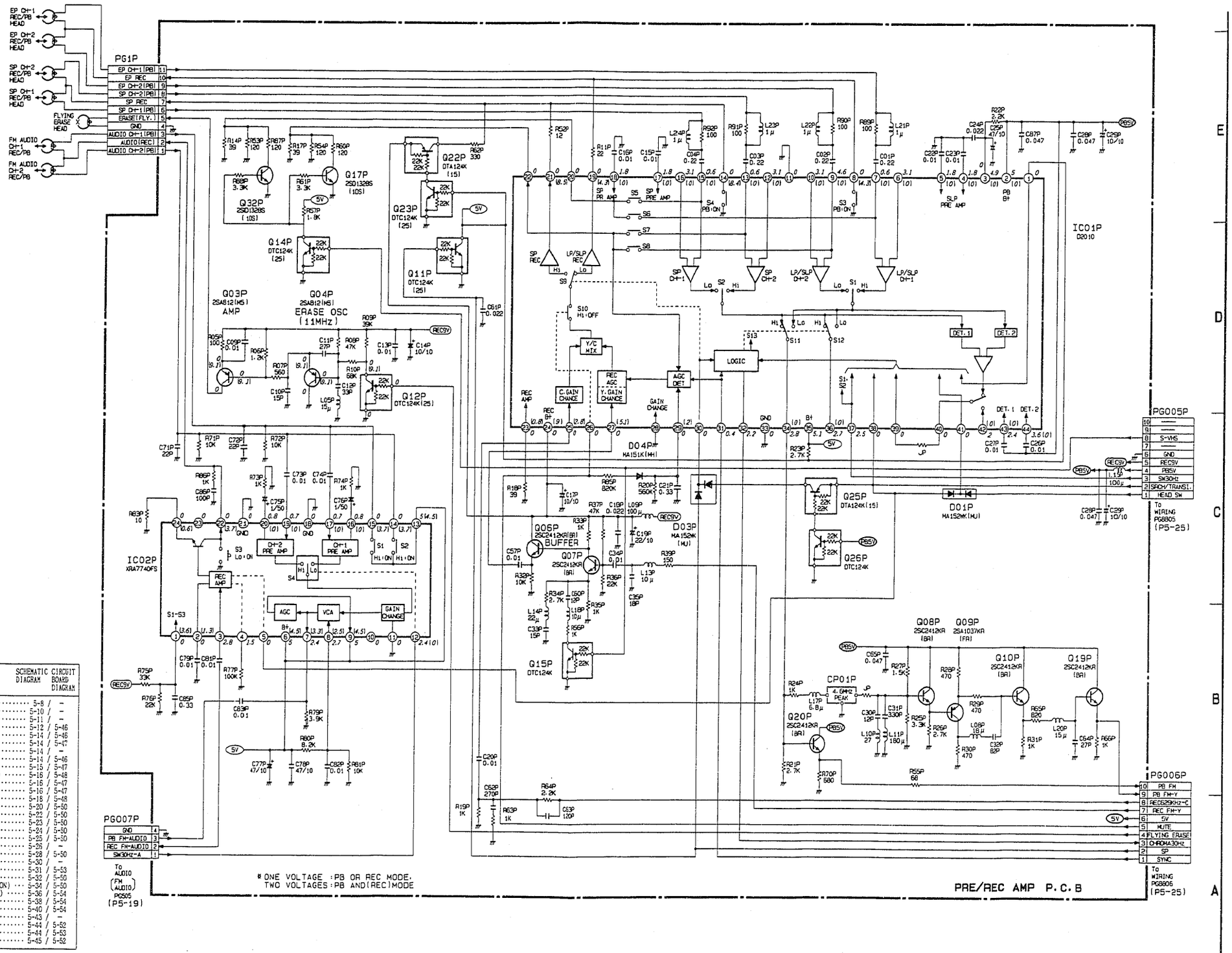


WIRING SCHEMATIC DIAGRAM



	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	—
IF	5-10	—
RF CONVERTER	5-11	—
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	—
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	—
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	—
SENSOR/CYL.MOTOR DRIVE	5-31	5-52
SSJ(SUB μP SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	—
POWER TRANS (For AV)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

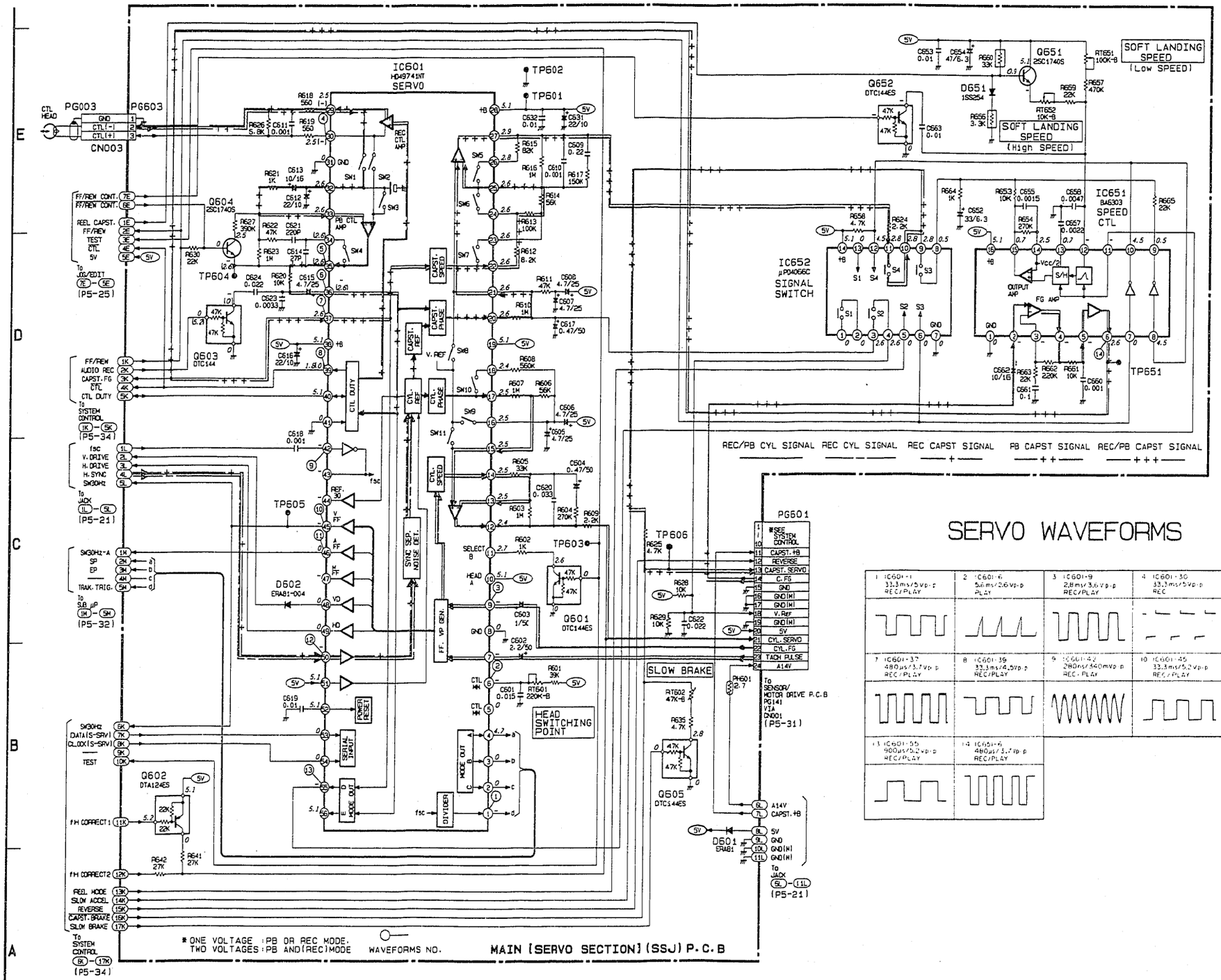
PRE/REC AMP SCHEMATIC DIAGRAM



SCHEMATIC CIRCUIT DIAGRAM	BOARD DIAGRAM
U-V PLL TUNIC	5-8 / –
IF	5-10 / –
RF CONVERTER	5-11 / –
TIMER	5-12 / 5-46
RELAY	5-14 / 5-46
JOG DIAL	5-14 / 5-47
DOOR SWITCH	5-14 / –
FRONT SWITCH	5-14 / 5-46
FRONT JACK	5-15 / 5-47
AUDIO(AUDIO I/O SECTION)	5-16 / 5-48
LINE SELECTOR	5-16 / 5-47
BASS BOOST	5-16 / 5-47
AUDIO(FM AUDIO SECTION)	5-18 / 5-48
SSJ(JACK SECTION)	5-20 / 5-50
SSJ(REGULATOR SECTION)	5-22 / 5-50
SSJ(OSD SECTION)	5-23 / 5-50
SSJ(JOG/EDIT SECTION)	5-24 / 5-50
WIRING	5-25 / 5-50
PRE/REC AMP	5-26 / –
SSJ(SERVO SECTION)	5-28 / 5-50
CAPSTAN MOTOR	5-30 / –
SENSOR/CYL.MOTOR DRIVE	5-31 / 5-53
SSJ(SUB μ P SECTION)	5-32 / 5-50
SSJ(SYSTEM CONTROL SECTION)	5-34 / 5-50
YCJ(Y/C SEPARATE SECTION)	5-36 / 5-54
YCJ(Y PROCESS SECTION)	5-38 / 5-54
CHROMA PROCESS	5-40 / 5-54
REMOTE CONTROL	5-43 / –
POWER TRANS (For AW)	5-44 / 5-52
POWER TRANS (For A)	5-44 / 5-52
REGULATOR	5-45 / 5-52

* ONE VOLTAGE :PB OR REC MODE.
TWO VOLTAGES:PB AND(REC)MODE

SERVO SCHEMATIC DIAGRAM

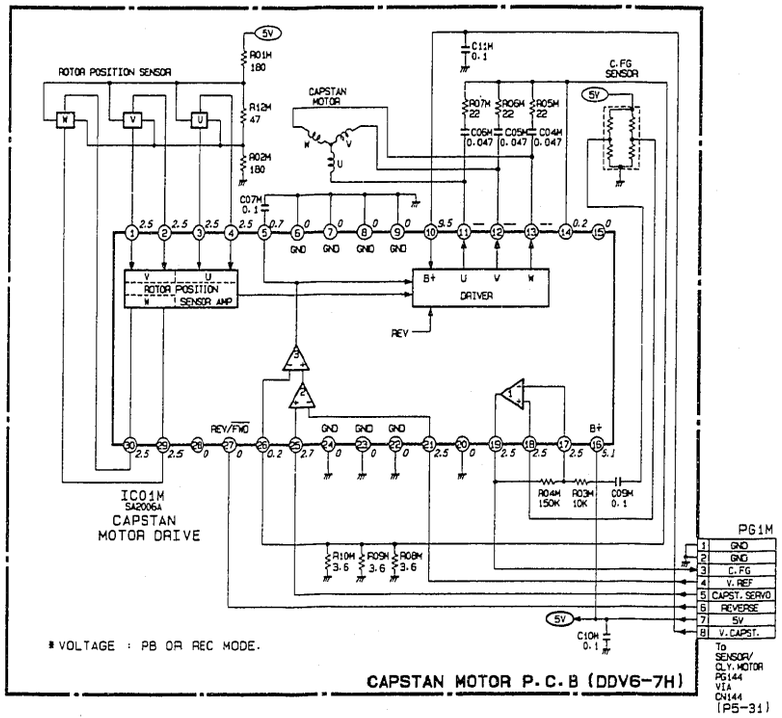


	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	—
IF	5-10	—
RF CONVERTER	5-11	—
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	—
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	—
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	—
SENSOR/CYL.MOTOR DRIVE	5-31	5-53
SSJ(SUB μP SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECT.ON)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	—
POWER TRANS (For AH)	5-44	5-52
POWER TRANS (For A)	5-44	5-55
REGULATOR	5-45	5-52

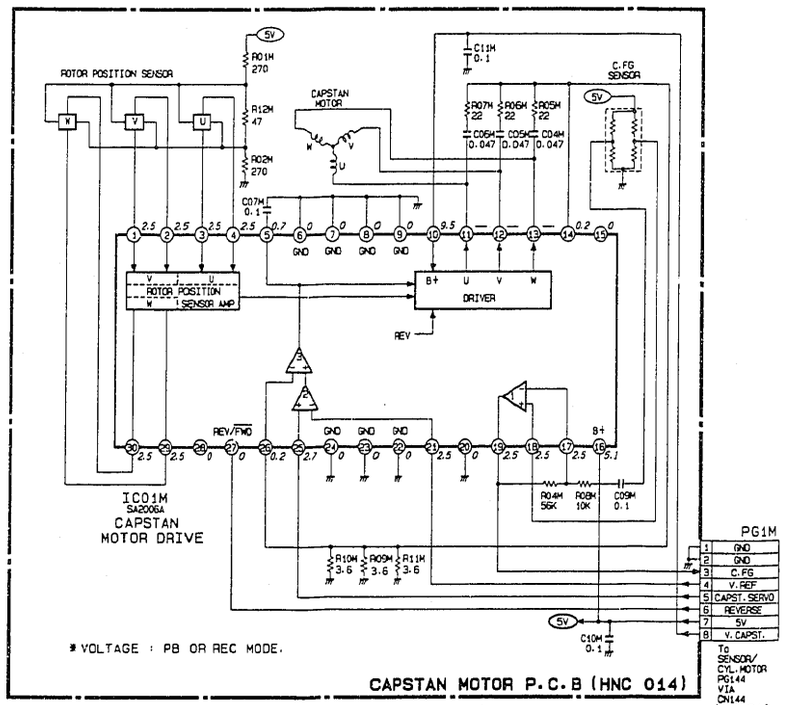
SERVO WAVEFORMS

1 IC601-1 33.3ms/5Vp-p REC/PLAY	2 IC601-6 5.6ms/2.6Vp-p PLAY	3 IC601-9 2.8ms/3.6Vp-p REC/PLAY	4 IC601-30 33.3ms/5Vp-p REC	5 IC601-35 33.3ms, 2.2Vp-p PLAY	6 IC601-36 33.3ms/1.8Vp-p PLAY
7 IC601-37 480μs/3.7Vp-p REC/PLAY	8 IC601-39 33.3ms/4.5Vp-p REC/PLAY	9 IC601-42 280ns/340mVp-p REC·PLAY	10 IC601-45 33.3ms/5.2Vp-p REC/PLAY	11 IC601-46 33.3ms/5.2Vp-p REC/PLAY	12 IC601-50 63.5μs/4Vp-p REC/PLAY
13 IC601-55 960μs/5.2Vp-p REC/PLAY	14 IC651-4 480μs/3.7Vp-p REC/PLAY				

CAPSTAN MOTOR(DDV6-7H) SCHEMATIC DIAGRAM

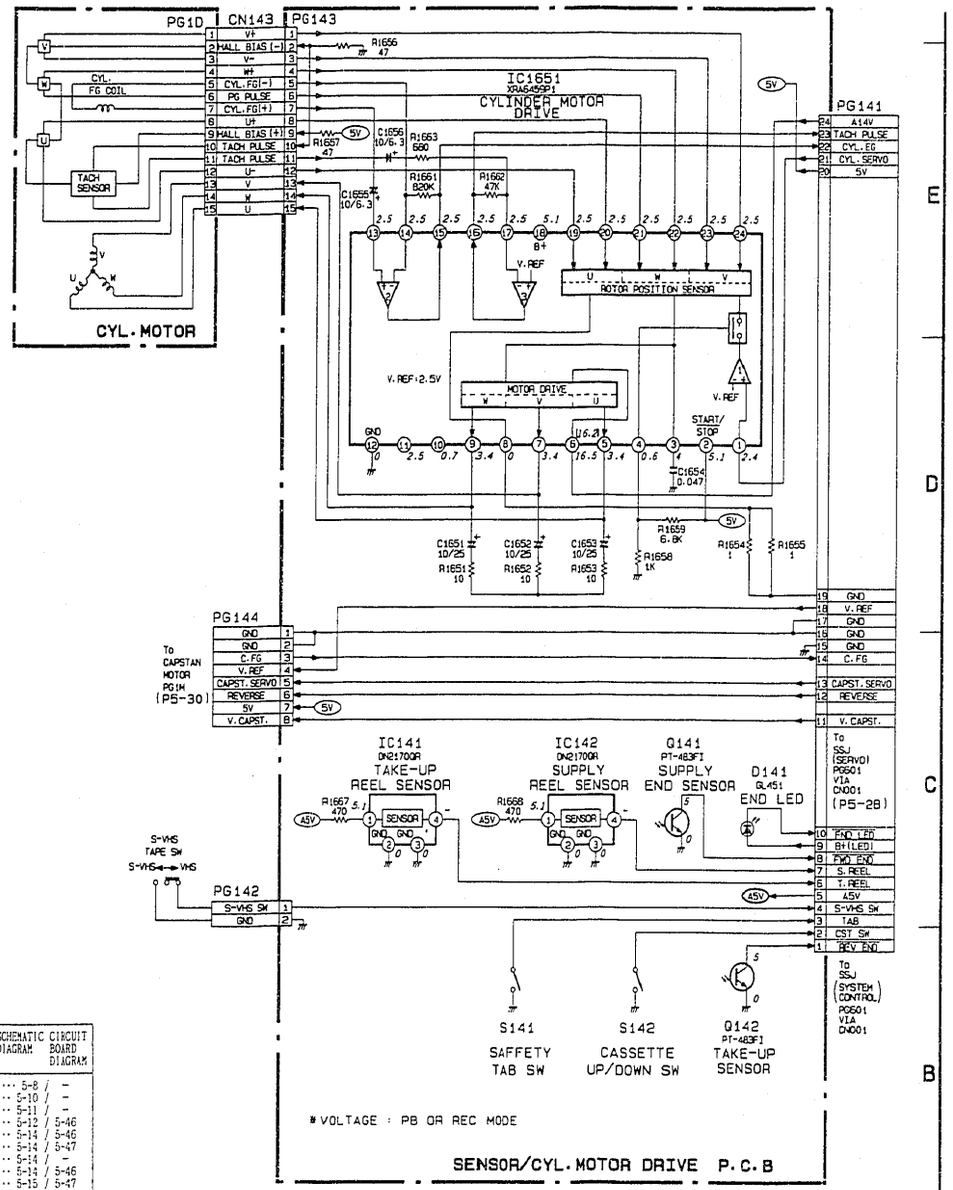


CAPSTAN MOTOR(HNC 014) SCHEMATIC DIAGRAM

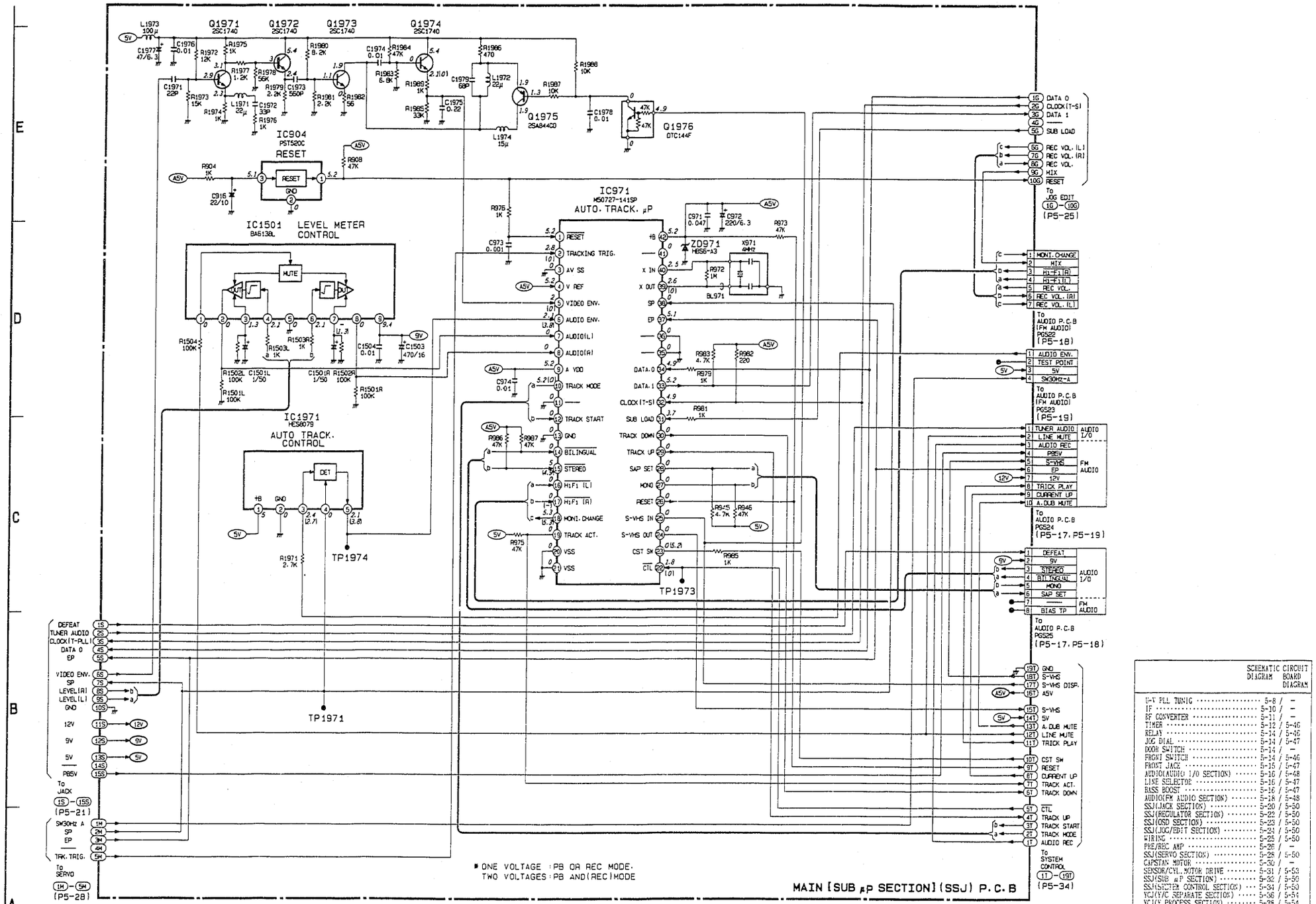


	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	-
IF	5-10	-
RF CONVERTER	5-11	-
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	-
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	-
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	-
SENSOR/CYL.MOTOR DRIVE	5-31	5-53
SSJ(SUB µP SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	-
POWER TRANS (For AW)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

SENSOR/CYL. MOTOR DRIVE SCHEMATIC DIAGRAM

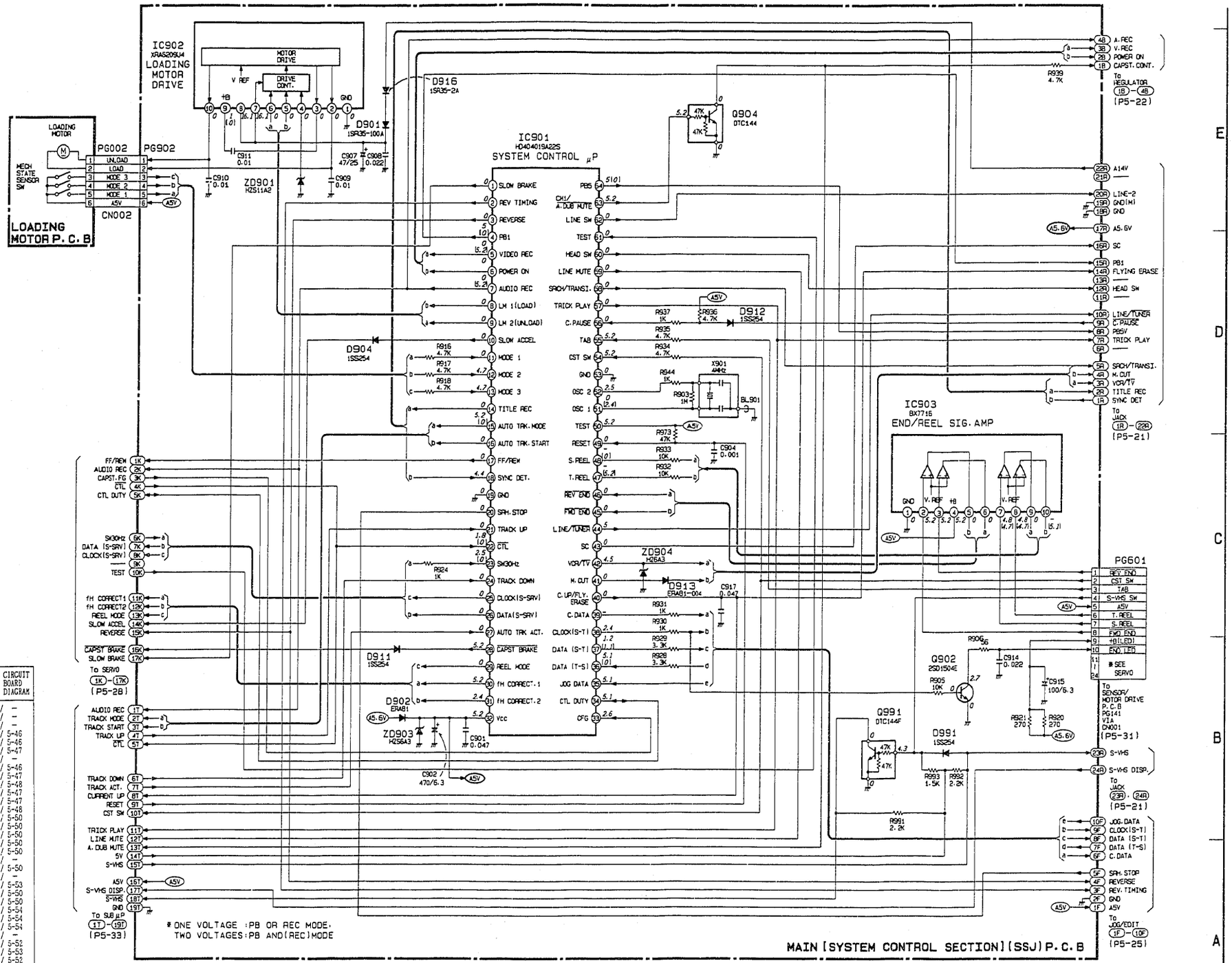


SUB μP SCHEMATIC DIAGRAM



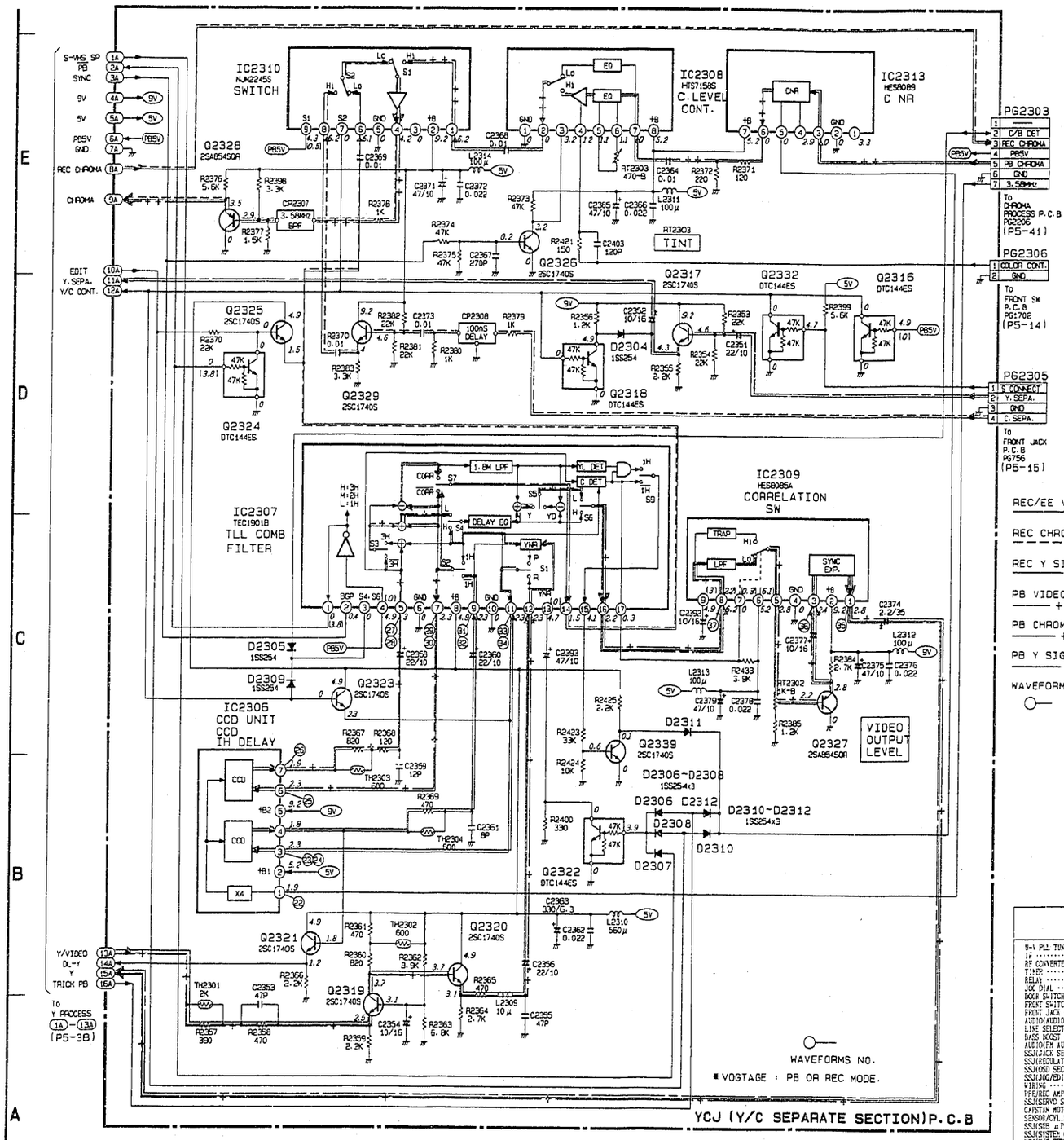
	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	—
IF	5-10	—
RF CONVENTER	5-11	—
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	—
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	—
SSJ(SERVO SECTION)	5-26	5-50
CAPSTAN MOTOR	5-30	—
SENSOR/CYL.MOTOR DRIVE	5-31	5-53
SSJ(SUB μP SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
VCJ(Y/C SEPARATE SECTION)	5-36	5-54
VCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	—
POWER TRANS (For AK)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

SYSTEM CONTROL SCHEMATIC DIAGRAM



	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	—
IF	5-10	—
RF CONVERTER	5-11	—
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	—
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	—
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	—
SENSOR/CYL.MOTOR DRIVE	5-31	5-53
SSJ(SUB μP SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	—
POWER TRANS (For AW)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

Y/C SEPARATE SCHEMATIC DIAGRAM



REC/EE VIDEO SIGNAL

REC CHROMA SIGNAL

REC Y SIGNAL

PB VIDEO SIGNAL

PB CHROMA SIGNAL

PB Y SIGNAL

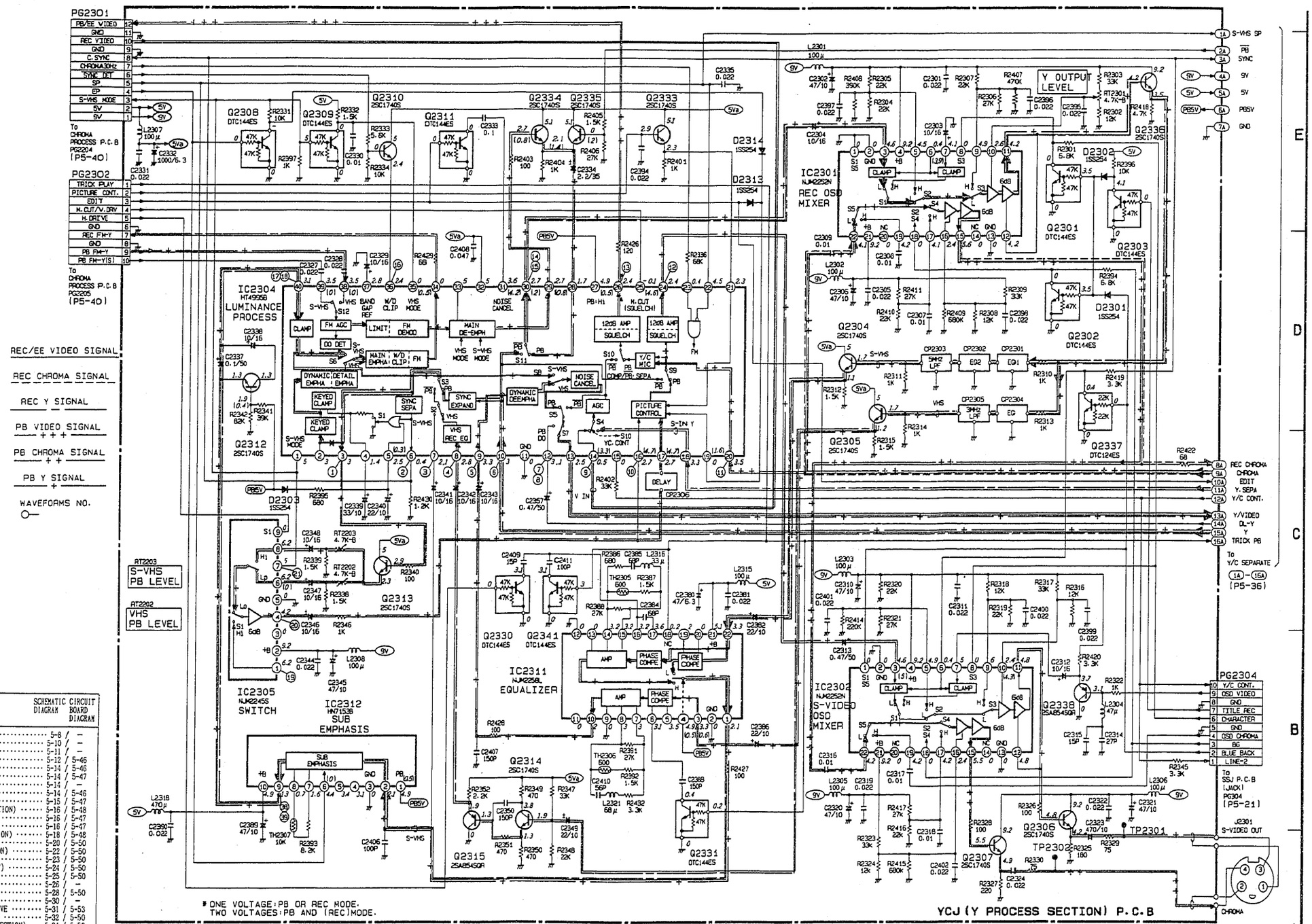
WAVEFORMS NO.

SCHEMATIC CIRCUIT DIAGRAM	BOARD DIAGRAM
U-V PLL TUNIG	5-8 / -
IF	5-10 / -
RF CONVERTER	5-11 / -
TIMER	5-12 / 5-46
RELAY	5-13 / 5-46
JOG DIAL	5-14 / 5-47
DOOR SWITCH	5-14 / -
FRONT SWITCH	5-14 / 5-46
FRONT JACK	5-15 / 5-47
AUDIO(AUDIO I/O SECTION)	5-16 / 5-48
LINE SELECTOR	5-16 / 5-47
BASS BOOST	5-16 / 5-47
AUDIO(FM AUDIO SECTION)	5-18 / 5-48
SSSI(JACK SECTION)	5-20 / 5-50
SSSI(REGULATOR SECTION)	5-22 / 5-50
SSSI(OSD SECTION)	5-23 / 5-50
SSSI(JOG/EDIT SECTION)	5-24 / 5-50
WIRING	5-25 / 5-50
PRE/REC AMP	5-29 / -
SSSI(SERVO SECTION)	5-26 / 5-50
CAPSTAN MOTOR	5-30 / -
SENSOR/CYL MOTOR DRIVE	5-31 / 5-50
SSSI(SUB μ-P SECTION)	5-32 / 5-50
SSSI(SYSTEM CONTROL SECTION)	5-34 / 5-50
YCJ(Y/C SEPARATE SECTION)	5-36 / 5-54
YCJ(Y PROCESS SECTION)	5-38 / 5-54
CHROMA PROCESS	5-40 / 5-54
REMOTE CONTROL	5-43 / -
POWER TRANS (For AV)	5-44 / 5-55
POWER TRANS (For A)	5-45 / 5-55
REGULATOR	5-45 / 5-55

Y/C SEPARATE, Y PROCESS WAVEFORM

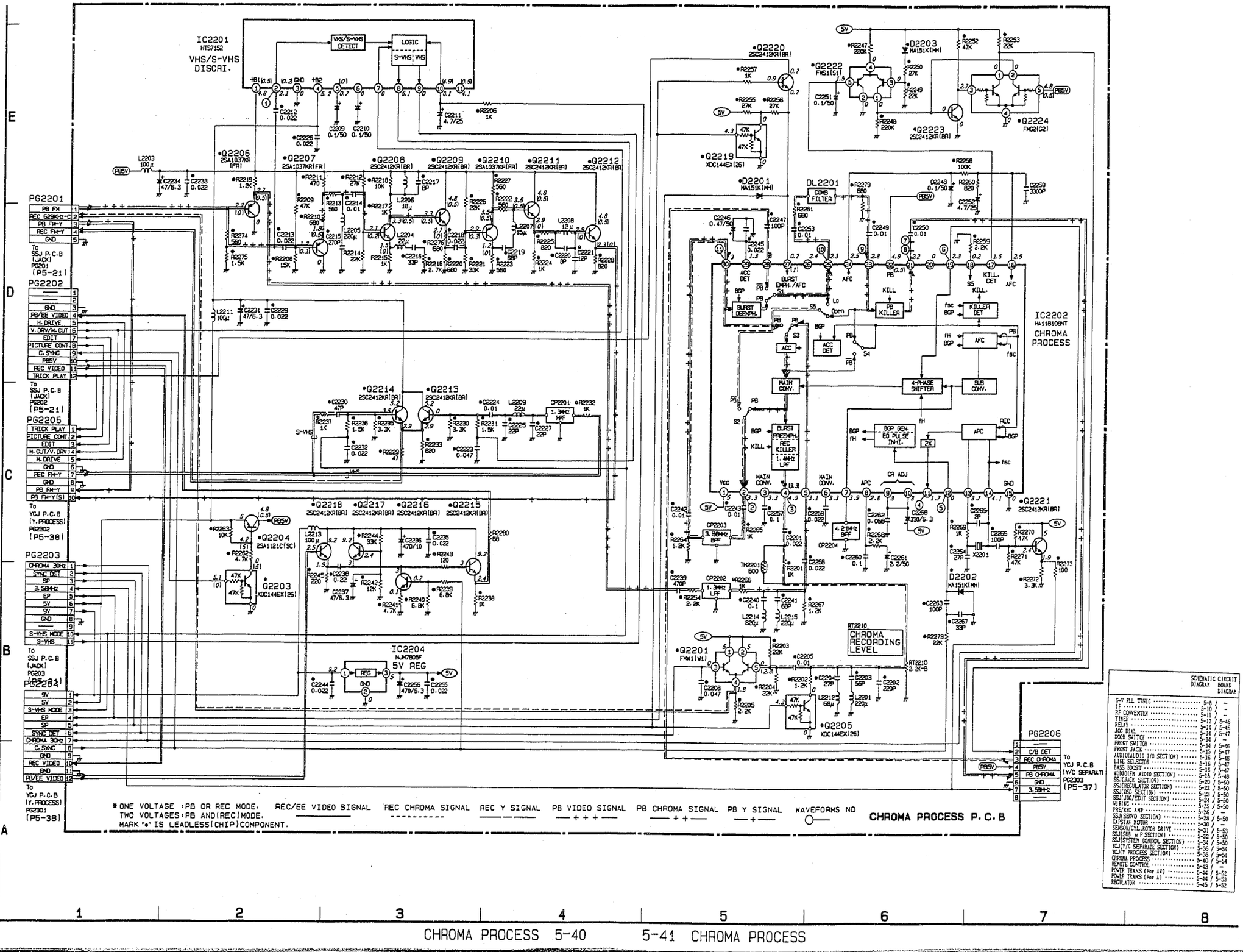
1 IC2304-3 63.5μs/0.5Vp-p REC/PB	2 IC2304-6 63.5μs/4.5Vp-p REC/PB	3 IC2304-7 63.5μs/0.5Vp-p REC/PB	4 IC2304-8 63.5μs/0.5Vp-p REC/PB	5 IC2304-9 63.5μs/0.5Vp-p REC/PB
6 IC2304-10 63.5μs/0.5Vp-p REC/PB	7 IC2304-12 63.5μs/0.5Vp-p REC	8 IC2304-12 63.5μs/0.5Vp-p PB	9 IC2304-14 63.5μs/0.5Vp-p REC	10 IC2304-16 63.5μs/0.5Vp-p REC
11 IC2304-20 63.5μs/0.8Vp-p REC/PB	12 IC2304-24 63.5μs/2Vp-p REC/PB	13 IC2304-26 63.5μs/2Vp-p REC/PB	14 IC2304-30 63.5μs/1Vp-p REC	15 IC2304-30 63.5μs/1.5Vp-p PB
16 IC2304-36 63.5μs/1Vp-p REC	17 IC2304-40 63.5μs/0.5Vp-p REC	18 IC2304-40 63.5μs/0.6Vp-p PB	19 IC2305-1 63.5μs/0.3Vp-p REC/PB	20 IC2305-4 63.5μs/0.3Vp-p REC/PB
21 IC2305-7 63.5μs/0.5Vp-p REC/PB	22 IC2306-1 280ns/0.3Vp-p REC/PB	23 IC2306-3 63.5μs/0.5Vp-p REC	24 IC2306-3 63.5μs/0.5Vp-p PB	25 IC2306-6 63.5μs/0.5Vp-p REC
26 IC2306-7 63.5μs/0.5Vp-p PB	27 IC2307-5 63.5μs/0.5Vp-p REC	28 IC2307-5 63.5μs/0.5Vp-p PB	29 IC2307-7 63.5μs/0.5Vp-p REC	30 IC2307-7 63.5μs/0.5Vp-p PB
31 IC2307-9 63.5μs/0.5Vp-p REC	32 IC2307-9 63.5μs/0.5Vp-p PB	33 IC2307-11 63.5μs/0.5Vp-p REC	34 IC2307-11 63.5μs/0.5Vp-p PB	35 IC2309-1 63.5μs/0.5Vp-p REC/PB
36 IC2309-3 63.5μs/0.5Vp-p REC/PB	37 IC2309-8 63.5μs/0.7Vp-p REC/PB	38 IC2312-9 63.5μs/0.5Vp-p REC	39 IC2312-9 63.5μs/0.5Vp-p PB	

Y PROCESS SCHEMATIC DIAGRAM



	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	—
IF	5-10	—
RF CONVERTER	5-11	—
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	—
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	—
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	—
SENSOR/CYL.MOTOR DRIVE	5-31	5-53
SSJ(SUB μ-P SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	—
POWER TRANS (For AV)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

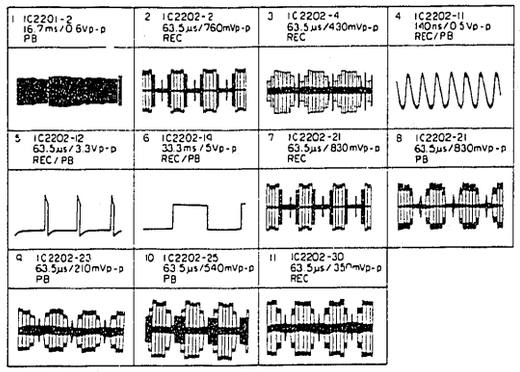
CHROMA PROCESS SCHEMATIC DIAGRAM



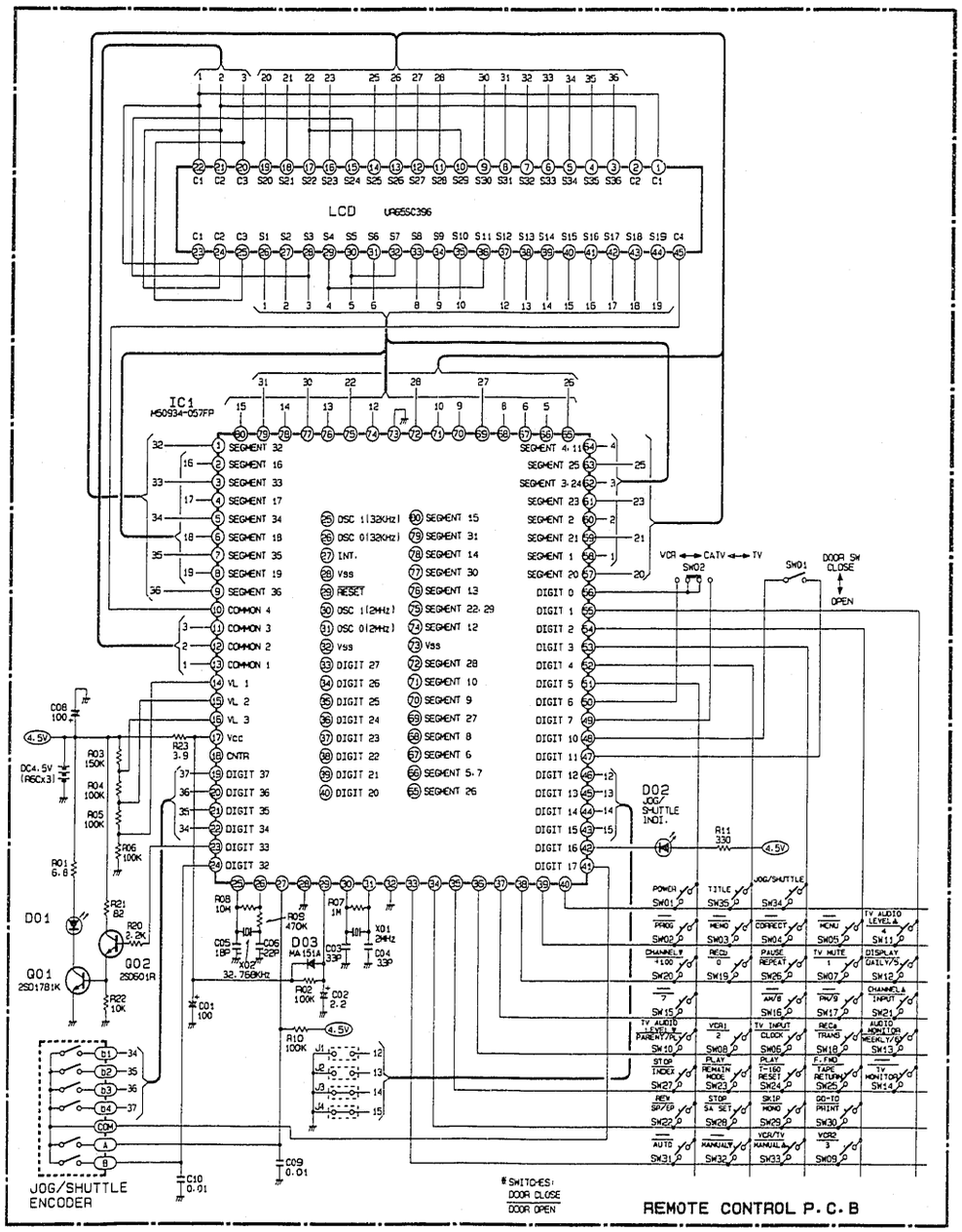
SCHEMATIC CIRCUIT DIAGRAM / BOARD DIAGRAM

U-V PLL TUNIG ..... 5-6 / –
IF ..... 5-10 / –
RF CONVERTER ..... 5-11 / –
TIMER ..... 5-12 / 5-46
RELAY ..... 5-12 / 5-46
JOG DIAL ..... 5-14 / 5-47
DOOR SWITCH ..... 5-14 / –
FRONT SW(TCJ) ..... 5-14 / 5-46
FRONT JACK ..... 5-15 / 5-47
AUDIO(AUDIO I/O SECTION) ..... 5-16 / 5-48
LINE SELECTOR ..... 5-16 / 5-47
BASS BOOST ..... 5-16 / 5-47
AUDIO(FM AUDIO SECTION) ..... 5-18 / 5-48
SSJ(JACK SECTION) ..... 5-20 / 5-50
SSJ(REGULATOR SECTION) ..... 5-22 / 5-50
SSJ(OSD SECTION) ..... 5-23 / 5-50
SSJ(JOG/EDIT SECTION) ..... 5-24 / 5-50
WIRING ..... 5-25 / 5-50
PRE/REC AMP ..... 5-26 / –
SSJ(SERVO SECTION) ..... 5-28 / 5-50
CAPSTAN MOTOR ..... 5-30 / –
SENSOR/CYL. MOTOR DRIVE ..... 5-31 / 5-53
SSJ(SUB μ P SECTION) ..... 5-33 / 5-50
SSJ(SYSTEM CONTROL SECTION) ..... 5-34 / 5-50
YCJ(Y/C SEPARATE SECTION) ..... 5-36 / 5-54
YCJ(Y PROCESS SECTION) ..... 5-38 / 5-54
CHROMA PROCESS ..... 5-40 / 5-54
REMOTE CONTROL ..... 5-43 / –
POWER TRANS (For AV) ..... 5-44 / 5-52
POWER TRANS (For A) ..... 5-44 / 5-53
REGULATOR ..... 5-45 / 5-52

CHROMA PROCESS WAVEFORMS

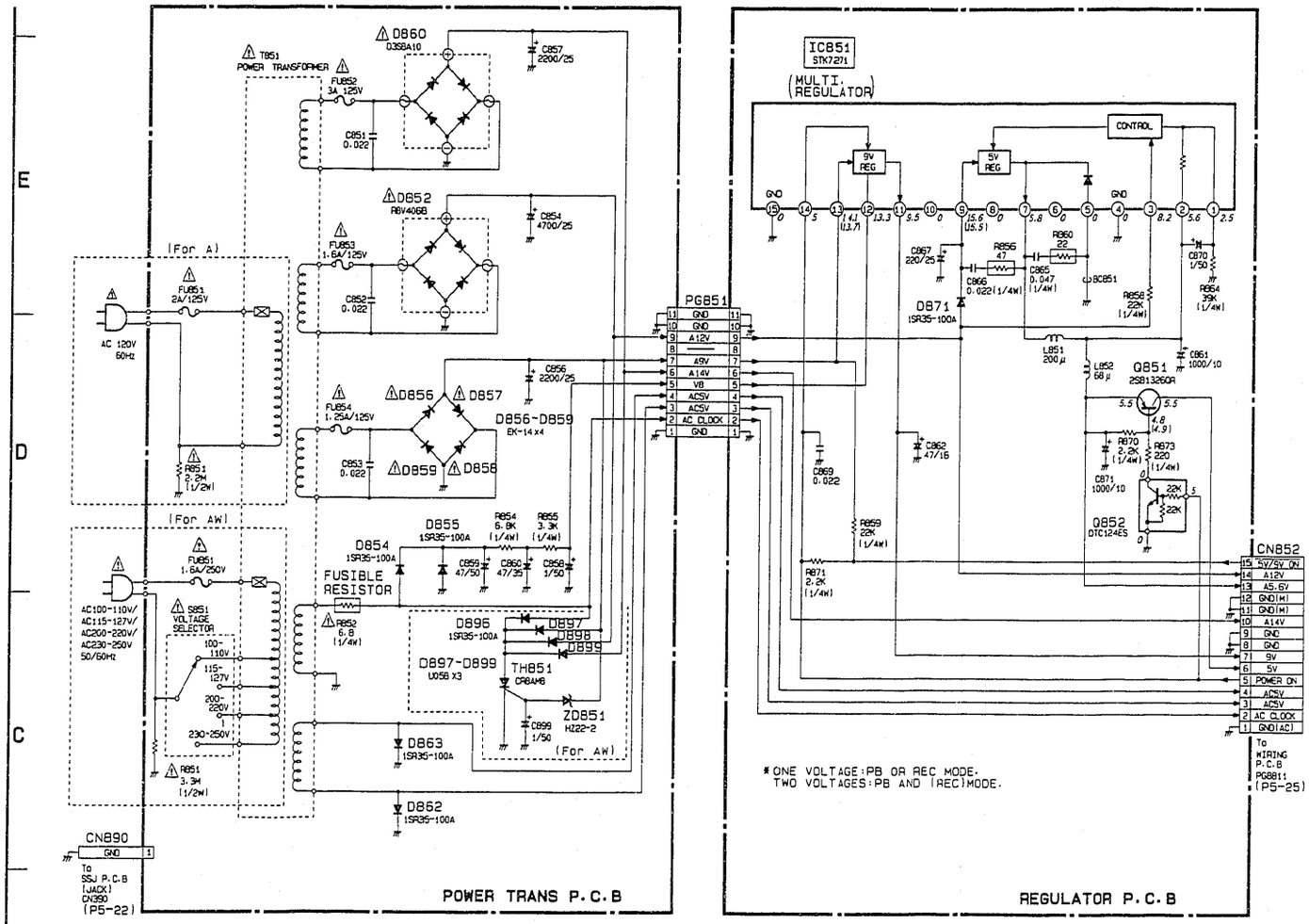


REMOTE CONTROL SCHEMATIC DIAGRAM



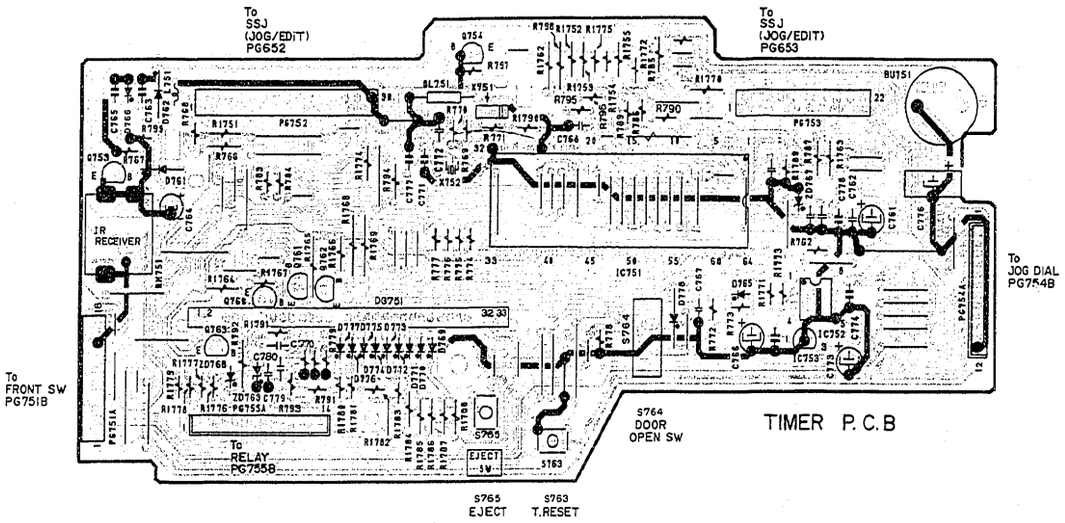
	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	–
IF	5-10	–
RF CONVERTER	5-11	–
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	–
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	–
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	–
SENSOR/CYL.MOTOR DRIVE	5-31	5-53
SSJ(SUB μ-P SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	–
POWER TRANS (For AW)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

POWER TRANS, REGULATOR SCHEMATIC DIAGRAMS



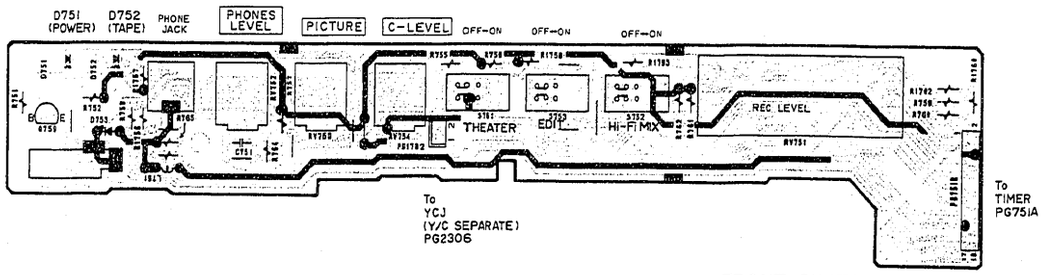
	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	—
IF	5-10	—
RF CONVERTER	5-11	—
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	—
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-25	—
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	—
SENSOR/CYL.MOTOR DRIVE	5-31	5-53
SSJ(SUB μP SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	—
POWER TRANS (For AW)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

TIMER CIRCUIT BOARD DIAGRAM



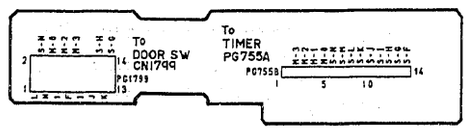
TIMER P.C.B

FRONT SWITCH CIRCUIT BOARD DIAGRAM



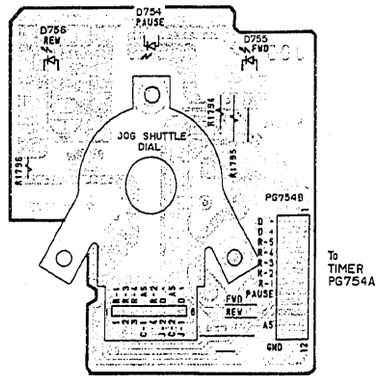
FRONT SWITCH P.C.B

RELAY CIRCUIT BOARD DIAGRAM



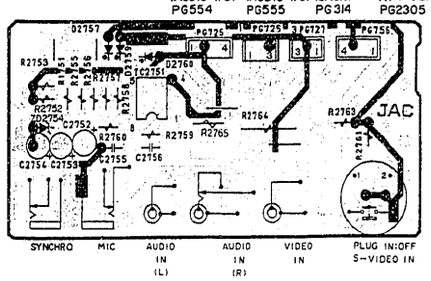
RELAY P.C.B

JOG DIAL CIRCUIT BOARD DIAGRAM



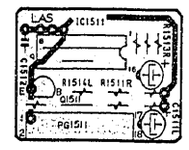
JOG DIAL P.C.B

FRONT JACK CIRCUIT BOARD DIAGRAM



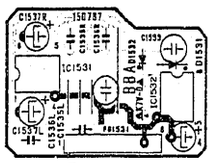
FRONT JACK P.C.B

LINE SELECTOR CIRCUIT BOARD DIAGRAM

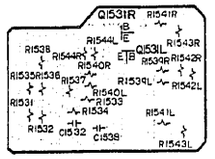


LINE SELECTOR P.C.B

BASS BOOST CIRCUIT BOARD DIAGRAM



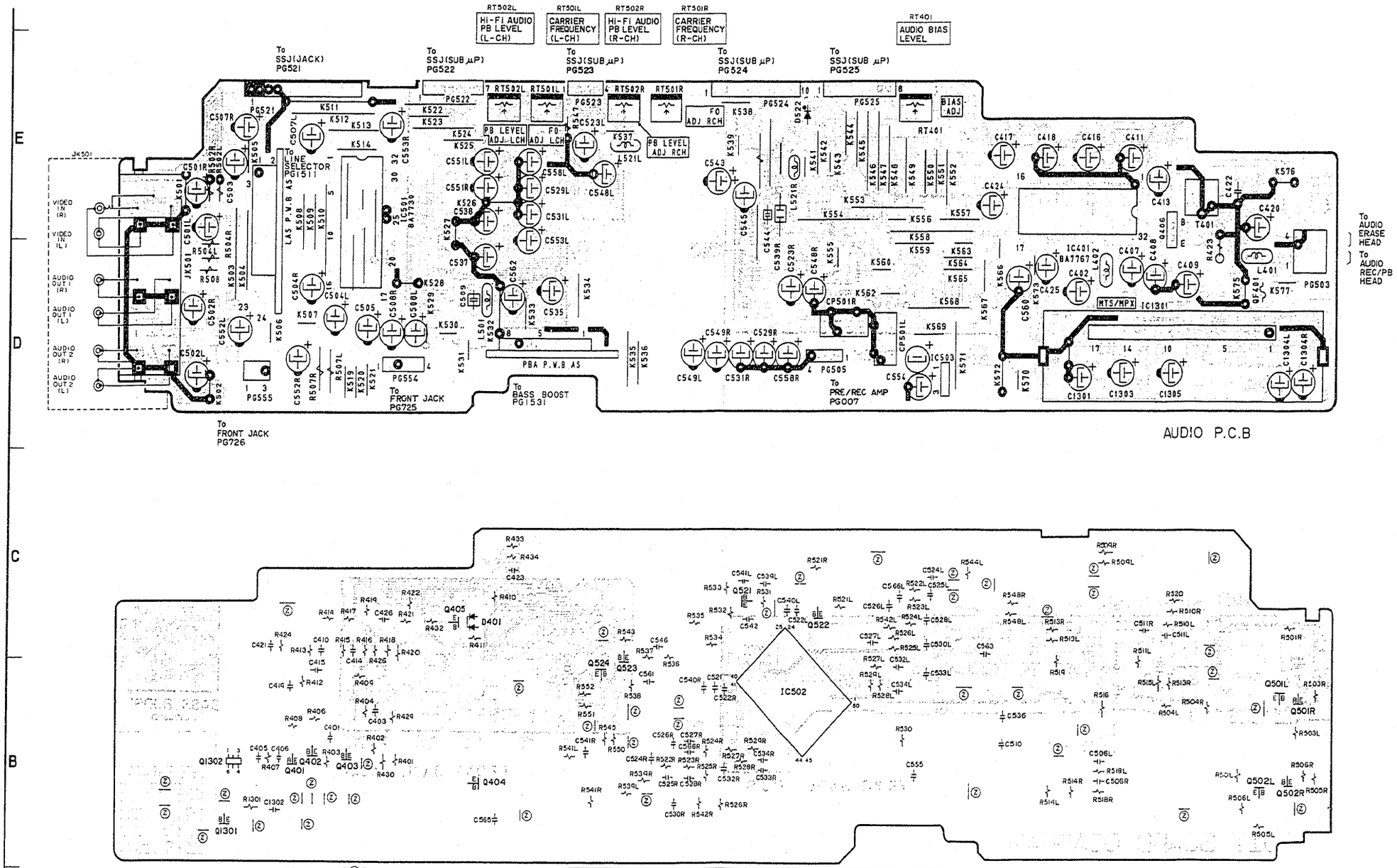
BASS BOOST P.C.B



BASS BOOST P.C.B
—CHIP PARTS—

	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	—
IF	5-10	—
RF CONVERTER	5-11	—
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	—
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FX AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	—
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-50	—
SENSOR/CYL.MOTOR DRIVE	5-51	5-53
SSJ(SUB μP SECTION)	5-52	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	—
POWER TRANS (For AV)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

AUDIO CIRCUIT BOARD DIAGRAM

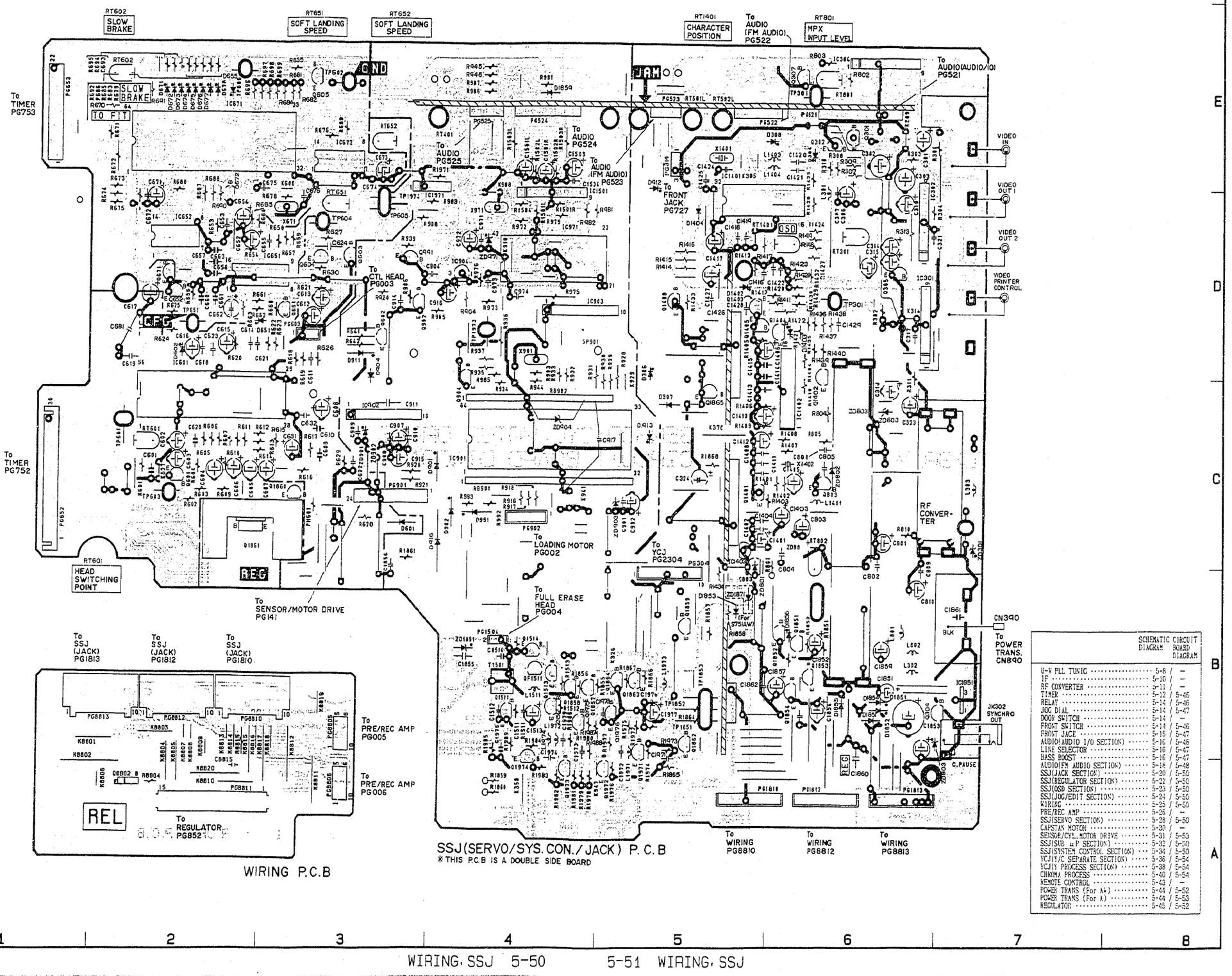


NOTE : MARK "Ⓩ" IS LEADLESS(CHIP) JUMPER.

AUDIO P.C.B
— CHIP PARTS —

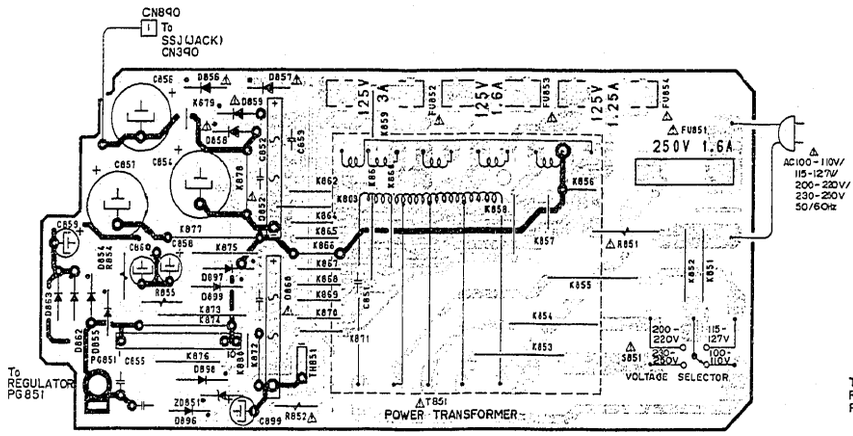
	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	—
IF	5-10	—
RF CONVERTER	5-11	—
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	—
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	—
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	—
SENSOR/CYL.MOTOR DRIVE	5-31	5-53
SSJ(SUB μP SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	—
POWER TRANS (For AK)	5-44	5-52
POWER TRANS (For AJ)	5-44	5-53
REGULATOR	5-45	5-52

WIRING, SSJ CIRCUIT BOARD DIAGRAM



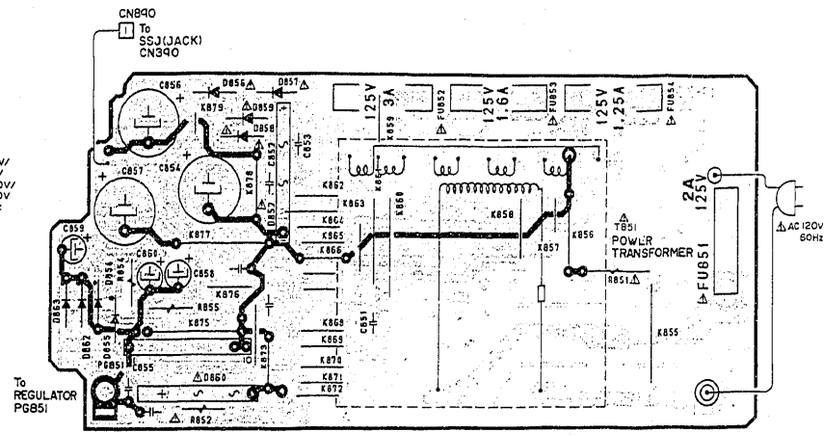
	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	—
IF	5-10	—
RF CONVERTER	5-11	—
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	—
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
BASS BOOST	5-16	5-47
AUDIO(FM AUDIO SECTION)	5-18	5-48
SSJ(JACK SECTION)	5-20	5-50
SSJ(REGULATOR SECTION)	5-22	5-50
SSJ(OSD SECTION)	5-23	5-50
SSJ(JOG/EDIT SECTION)	5-24	5-50
WIRING	5-25	5-50
PRE/REC AMP	5-26	/
SSJ(SERVO SECTION)	5-28	5-50
CAPSTAN MOTOR	5-30	—
SENSOR/CYL.MOTOR DRIVE	5-31	5-53
SSJ(SUB αP SECTION)	5-32	5-50
SSJ(SYSTEM CONTROL SECTION)	5-34	5-50
YCJ(Y/C SEPARATE SECTION)	5-36	5-54
YCJ(Y PROCESS SECTION)	5-38	5-54
CHROMA PROCESS	5-40	5-54
REMOTE CONTROL	5-43	—
POWER TRANS (For AK)	5-44	5-52
POWER TRANS (For A)	5-44	5-53
REGULATOR	5-45	5-52

POWER TRANS CIRCUIT BOARD DIAGRAM
(For AW)



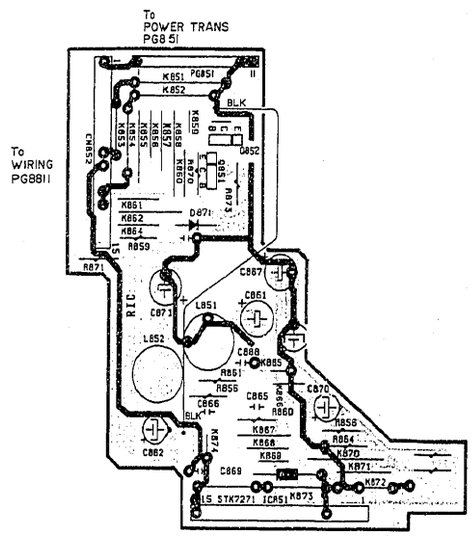
POWER TRANS P.C.B (For AW)

(For A)



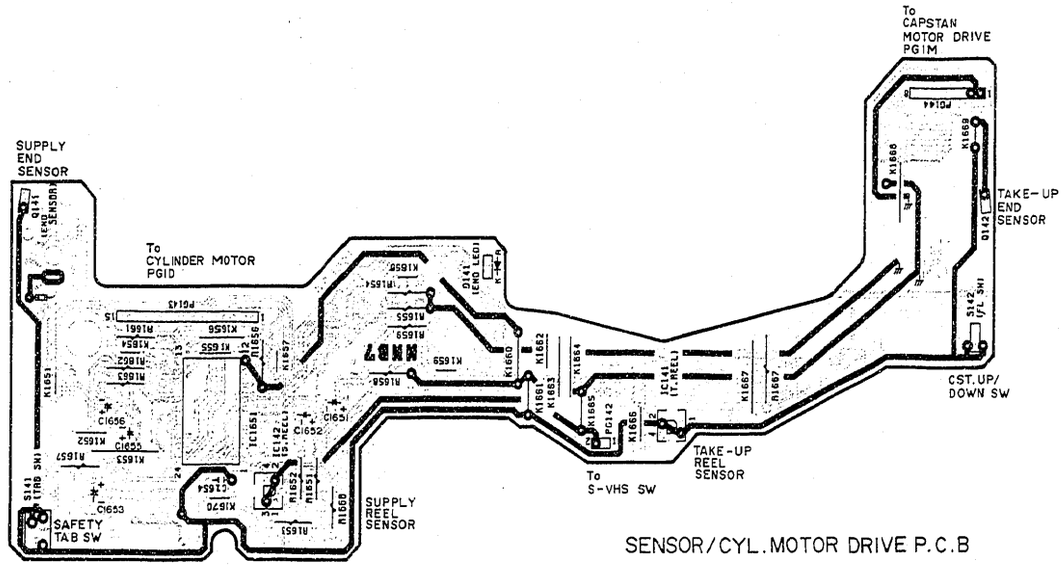
POWER TRANS P.C.B (For A)

REGULATOR CIRCUIT BOARD DIAGRAM



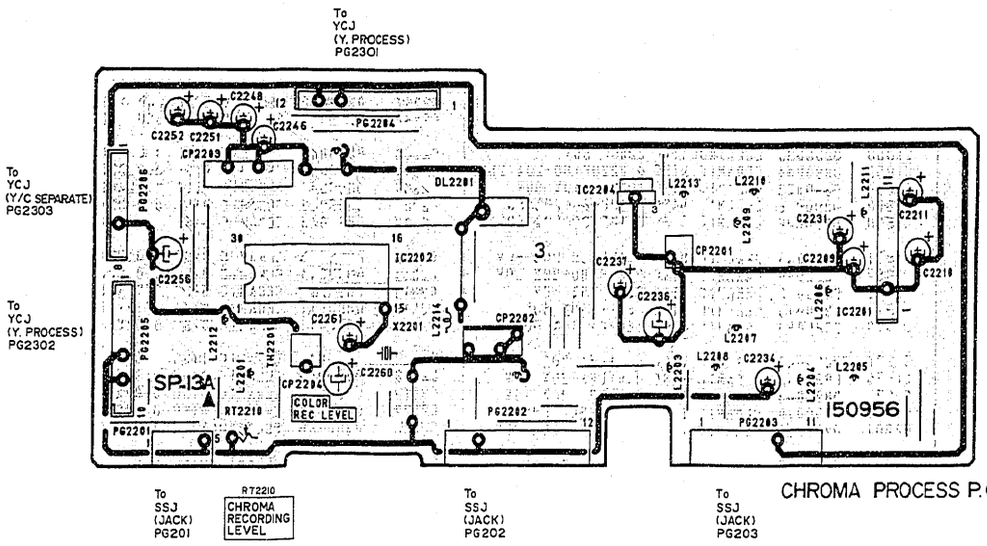
REGULATOR P.C.B

SENSOR/CYL. MOTOR DRIVE CIRCUIT BOARD DIAGRAM

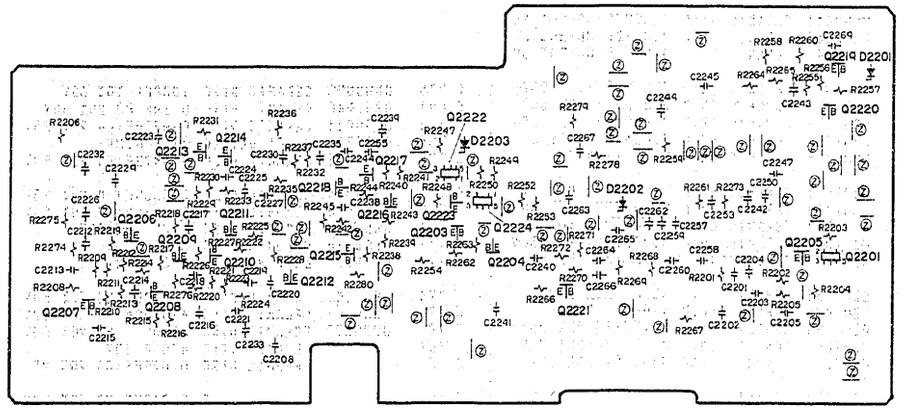


SENSOR/CYL.MOTOR DRIVE P.C.B

CHROMA PROCESS CIRCUIT BOARD DIAGRAM



CHROMA PROCESS P.C.B



NOTE : MARK "Ⓩ" IS LEADLESS (CHIP) JUMPER.

CHROMA PROCESS P.C.B
— CHIP PARTS —

	SCHEMATIC DIAGRAM	CIRCUIT BOARD DIAGRAM
U-V PLL TUNIG	5-8	—
IF	5-10	—
RF CONVERTER	5-11	—
TIMER	5-12	5-46
RELAY	5-14	5-46
JOG DIAL	5-14	5-47
DOOR SWITCH	5-14	—
FRONT SWITCH	5-14	5-46
FRONT JACK	5-15	5-47
AUDIO(AUDIO I/O SECTION)	5-16	5-48
LINE SELECTOR	5-16	5-47
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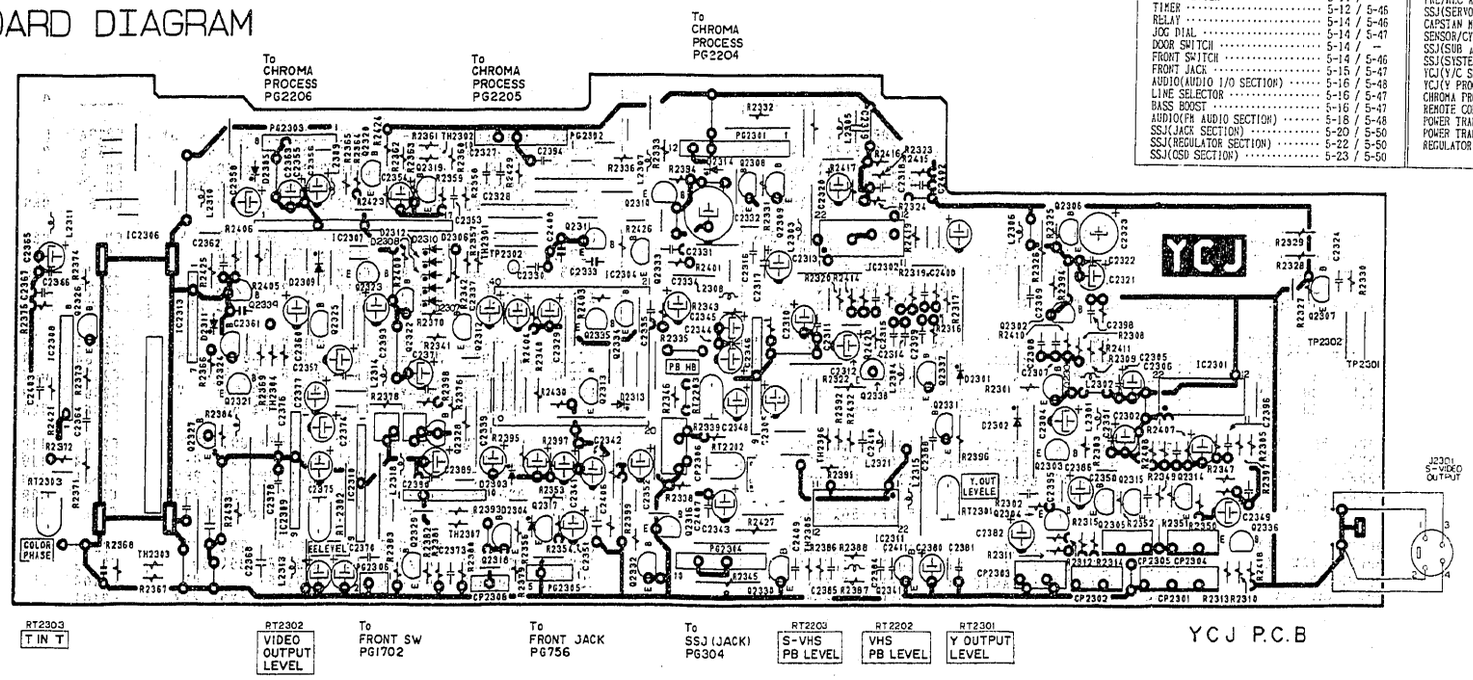
YCJ CIRCUIT BOARD DIAGRAM



YCJ P.C.B

REPLACEMENT PARTS LIST
ELECTRICAL PARTS LIST

SYMBOL-No	P-No	DESCRIPTION
		CAPACITORS
C 307	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C 317	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C 321	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C 401	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 403	0209977	CERAMIC CHIP 0.015UF+-10% 50V
C 405	0201057	CERAMIC CHIP 0.0022UF+-10% 50V
C 406	0201061	CERAMIC CHIP 0.0047UF+-10% 50V
C 410	0201038	CERAMIC CHIP 390PF+-5% 50V
C 414	0209977	CERAMIC CHIP 0.015UF+-10% 50V
C 415	0201059	CERAMIC CHIP 0.0033UF+-10% 50V
C 419	0201062	CERAMIC CHIP 0.0068UF+-10% 50V
C 421	0201057	CERAMIC CHIP 0.0022UF+-10% 50V
C 422	0204274	POLYESTER FILM 4700PF+-5% 100V
C 423	0201035	CERAMIC CHIP 220PF+-5% 50V
C 426	0201039	CERAMIC CHIP 470PF+-5% 50V
C 506L	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 506R	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 509	0890041	CERAMIC DISC 6800PF+-20% 16V
C 510	0201059	CERAMIC CHIP 0.0033UF+-10% 50V
C 521	0201031	CERAMIC CHIP 100PF+-5% 50V
C 522L	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 522R	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 524L	0201054	CERAMIC CHIP 1000PF+-10% 50V
C 524R	0201054	CERAMIC CHIP 1000PF+-10% 50V
C 525L	0201054	CERAMIC CHIP 1000PF+-10% 50V
C 525R	0201054	CERAMIC CHIP 1000PF+-10% 50V
C 526L	0201054	CERAMIC CHIP 1000PF+-10% 50V
C 526R	0201054	CERAMIC CHIP 1000PF+-10% 50V
C 527L	0201059	CERAMIC CHIP 0.0033UF+-10% 50V
C 527R	0201059	CERAMIC CHIP 0.0033UF+-10% 50V
C 528L	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 528R	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 530L	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 530R	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 532L	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 532R	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 533L	0201056	CERAMIC CHIP 0.0015UF+-10% 50V
C 533R	0201056	CERAMIC CHIP 0.0015UF+-10% 50V
C 534L	0201062	CERAMIC CHIP 0.0068UF+-10% 50V
C 534R	0201062	CERAMIC CHIP 0.0068UF+-10% 50V
C 536	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 539L	0201031	CERAMIC CHIP 100PF+-5% 50V
C 539R	0890022	CERAMIC DISC 100PF+-10% 50V
C 540L	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 540R	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 541L	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 541R	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 542	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 546	0201037	CERAMIC CHIP 330PF+-5% 50V
C 555	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C 561	0201031	CERAMIC CHIP 100PF+-5% 50V
C 563	0201007	CERAMIC CHIP 0.01UF+-20% 50V
C 565	0201069	CERAMIC CHIP 0.1UF+80-20% 25V
C 566L	0201054	CERAMIC CHIP 1000PF+-10% 50V
C 566R	0201054	CERAMIC CHIP 1000PF+-10% 50V
C 611	0890035	CERAMIC DISC 1000PF 50V
C 614	0890014	CERAMIC DISC 27PF+-50% 50V
C 618	0890035	CERAMIC DISC 1000PF 50V
C 619	0890043	CERAMIC DISC 0.01UF+-20% 16V
C 621	0890026	CERAMIC DISC 220PF+-10% 50V
C 622	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C 623	0890038	CERAMIC DISC 3300PF+-20% 16V
C 624	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C 632	0890101	CERAMIC DISC 0.01UF+-20% 16V
C 653	0890043	CERAMIC DISC 0.01UF+-20% 16V
C 672	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C 674	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C 675	0890043	CERAMIC DISC 0.01UF+-20% 16V
C 676	0890022	CERAMIC DISC 100PF+-10% 50V
C 681	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C 762	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C 764	0256711	ELECTROLYTIC 47UF 6.3V
C 767	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C 768	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C 770	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C 771	0890009	CERAMIC DISC 12PF+-5% 50V
C 772	0890015	CERAMIC DISC 33PF+-50% 50V
C 773	0256626	ELECTROLYTIC 47UF 6.3V
C 774	0890102	CERAMIC DISC 0.022UF+80-20% 50V
C 778	0890103	CERAMIC DISC 47000PF+80-20% 12V
C 780	0239377	CERAMIC DISC 47000PF+80-20% 50V
C 801	0256789	ELECTROLYTIC 470UF 10V
C 802	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C 804	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C 805	0890039	CERAMIC DISC 4700PF+-20% 16V
C 808	0890035	CERAMIC DISC 1000PF 50V
C 809	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C 851	0890102	CERAMIC DISC 0.022UF+80-20% 50V
C 852	0890102	CERAMIC DISC 0.022UF+80-20% 50V
C 853	0890102	CERAMIC DISC 0.022UF+80-20% 50V
C 854	0256787	ELECTROLYTIC 4700UF 25V
C 856	0256862	ELECTROLYTIC 2200UF 25V
C 857	0256862	ELECTROLYTIC 2200UF 25V
C 861	0256858	ELECTROLYTIC 1000UF 10V
C 866	0890102	CERAMIC DISC 0.022UF+80-20% 50V
C 869	0890102	CERAMIC DISC 0.022UF+80-20% 50V
C 871	0256858	ELECTROLYTIC 1000UF 10V
C 901	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C 904	0890035	CERAMIC DISC 1000PF 50V
C 908	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C 909	0890043	CERAMIC DISC 0.01UF+-20% 16V
C 910	0890043	CERAMIC DISC 0.01UF+-20% 16V
C 911	0890043	CERAMIC DISC 0.01UF+-20% 16V
C 914	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C 971	0890045	CERAMIC DISC 0.047UF+80-20% 50V
C 973	0890035	CERAMIC DISC 1000PF 50V
C 974	0890043	CERAMIC DISC 0.01UF+-20% 16V
C1302	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C1402	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C1404	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C1408	0890034	CERAMIC DISC 820PF+-10% 5V
C1409	0890037	CERAMIC DISC 2200PF+-20% 16V
C1410	0256151	ELECTROLYTIC 1UF 50V
C1413	0890022	CERAMIC DISC 100PF+-10% 50V
C1418	0890017	CERAMIC DISC 47PF+-5% 50V
C1419	0208402	CERAMIC DISC 47PF+-5% 50V
C1420	0890018	CERAMIC DISC 56PF+-50% 50V
C1421	0890018	CERAMIC DISC 56PF+-50% 50V
C1422	0890022	CERAMIC DISC 100PF+-10% 50V
C1423	0890022	CERAMIC DISC 100PF+-10% 50V
C1424	0890009	CERAMIC DISC 12PF+-5% 50V
C1425	0890009	CERAMIC DISC 12PF+-5% 50V
C1426	0890035	CERAMIC DISC 1000PF 50V
C1428	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C1429	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C1504	0890043	CERAMIC DISC 0.01UF+-20% 16V
C1511	0890038	CERAMIC DISC 3300PF+-20% 16V
C1512	0890043	CERAMIC DISC 0.01UF+-20% 16V

SYMBOL-No	P-No	DESCRIPTION
C1514	0204273	POLYESTER FILM 6800PF+-5% 100V
C1532	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C1538	0201065	CERAMIC CHIP 0.022UF+-10% 25V
C1655	0256825	ELECTROLYTIC 10UF 6.3V
C1656	0256825	ELECTROLYTIC 10UF 6.3V
C1853	0256635	ELECTROLYTIC 220UF 50V
C1855	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C1856	0890022	CERAMIC DISC 100PF+-10% 50V
C1858	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C1860	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C1861	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C1862	0890046	CERAMIC DISC 0.1UF+80-20% 50V
C1971	0890013	CERAMIC DISC 22PF+-5% 50V
C1972	0890015	CERAMIC DISC 33PF+-50% 50V
C1973	0890032	CERAMIC DISC 560PF+-10% 50V
C1974	0890043	CERAMIC DISC 0.01UF+-20% 16V
C1976	0890043	CERAMIC DISC 0.01UF+-20% 16V
C1978	0890043	CERAMIC DISC 0.01UF+-20% 16V
C1979	0890019	CERAMIC DISC 68PF+-50% 50V
C2201	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2202	0209856	CERAMIC DISC 220PF+-5% 50V
C2203	0209897	CERAMIC CHIP 56PF+-5% 50V
C2204	0209894	CERAMIC CHIP 27PF+-10% 50V
C2205	0209838	CERAMIC CHIP 0.01UF+-20% 50V
C2208	0209869	CERAMIC DISC 0.047UF+80-20% 25V
C2212	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2213	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2214	0209838	CERAMIC CHIP 0.01UF+-20% 50V
C2215	0209900	CERAMIC CHIP 270PF+-5% 50V
C2216	0209846	CERAMIC CHIP 33PF+-10% 50V
C2217	0209928	CERAMIC DISC 8PF+-5% 50V
C2218	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2219	0209853	CERAMIC DISC 68PF+-5% 50V
C2220	0209928	CERAMIC DISC 8PF+-5% 50V
C2221	0209931	CERAMIC CHIP 12PF+-5% 50V
C2223	0209869	CERAMIC DISC 0.047UF+80-20% 25V
C2224	0209838	CERAMIC CHIP 0.01UF+-20% 50V
C2225	0209893	CERAMIC CHIP 22PF+-10% 50V
C2226	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2227	0209893	CERAMIC CHIP 22PF+-10% 50V
C2229	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2230	0209896	CERAMIC CHIP 47PF+-5% 50V
C2232	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2233	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2235	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2236	0256789	ELECTROLYTIC 470UF 10V
C2238	0209963	CERAMIC CHIP 0.22UF+80-20% 16V
C2239	0209903	CERAMIC CHIP 470PF+-5% 50V
C2240	0209969	CERAMIC CHIP 0.1UF+80-20% 25V
C2241	0209853	CERAMIC DISC 68PF+-5% 50V
C2242	0209838	CERAMIC CHIP 0.01UF+-20% 50V
C2243	0209838	CERAMIC CHIP 0.01UF+-20% 50V
C2244	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2245	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2247	0209898	CERAMIC CHIP 100PF+-5% 50V
C2249	0209838	CERAMIC CHIP 0.01UF+-20% 50V
C2250	0209838	CERAMIC CHIP 0.01UF+-20% 50V
C2253	0209838	CERAMIC CHIP 0.01UF+-20% 50V
C2255	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2257	0209969	CERAMIC CHIP 0.1UF+80-20% 25V
C2258	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2259	0209855	CERAMIC CHIP 0.022UF+-20% 25V
C2260	0209969	CERAMIC CHIP 0.1UF+80-20% 25V
C2262	0201073	CERAMIC CHIP 0.068UF+80-20% 25V
C2263	0209898	CERAMIC CHIP 100PF+-5% 50V
C2264	0209935	CERAMIC CHIP 27PF+-5% 50V
C2265	0209922	CERAMIC DISC 2PF+-5% 50V
C2266	0209898	CERAMIC CHIP 100PF+-5% 50V
C2267	0209846	CERAMIC CHIP 33PF+-10% 50V
C2268	0256856	ELECTROLYTIC 330UF 6.3V
C2269	0209844	CERAMIC CHIP 0.0033UF+-10% 50V
C2301	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2305	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2307	0890043	CERAMIC DISC 0.01UF+-20% 16V
C2308	0890043	CERAMIC DISC 0.01UF+-20% 16V
C2309	0890043	CERAMIC DISC 0.01UF+-20% 16V
C2311	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2314	0890014	CERAMIC DISC 27PF+-50% 50V
C2315	0890011	CERAMIC DISC 15PF+-5% 50V
C2316	0890043	CERAMIC DISC 0.01UF+-20% 16V
C2317	0890043	CERAMIC DISC 0.01UF+-20% 16V
C2318	0890043	CERAMIC DISC 0.01UF+-20% 16V
C2319	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2322	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2323	0256789	ELECTROLYTIC 470UF 10V
C2324	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2327	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2328	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2330	0890043	CERAMIC DISC 0.01UF+-20% 16V
C2331	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2335	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2344	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2349	0256138	ELECTROLYTIC 22UF 10V
C2350	0890024	CERAMIC DISC 150PF+-10% 50V
C2353	0890017	CERAMIC DISC 47PF+-5% 50V
C2355	0890017	CERAMIC DISC 47PF+-5% 50V
C2357	0256150	ELECTROLYTIC 0.47UF 50V
C2359	0208442	CERAMIC DISC 12PF+-5% 50V
C2361	0208428	CERAMIC DISC 8PF+-0.5PF 50V
C2362	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2364	0890043	CERAMIC DISC 0.01UF+-20% 16V
C2366	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2367	0890027	CERAMIC DISC 270PF+-10% 50V
C2368	0890043	CERAMIC DISC 0.01UF+-20% 16V
C2369	0890043	CERAMIC DISC 0.01UF+-20% 16V
C2372	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2373	0890043	CERAMIC DISC 0.01UF+-20% 16V
C2376	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2377	0256135	ELECTROLYTIC 10UF 16V
C2378	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2381	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2384	0890019	CERAMIC DISC 68PF+-50% 50V
C2385	0890019	CERAMIC DISC 68PF+-50% 50V
C2388	0890024	CERAMIC DISC 150PF+-10% 50V
C2389	0256158	ELECTROLYTIC 47UF 16V
C2390	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2394	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2395	0239375	CERAMIC DISC 22000PF+80-20% 25V
C2396	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2397	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2398	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2399	0239375	CERAMIC DISC 22000PF+80-20% 25V
C2400	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2401	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2402	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2403	0890023	CERAMIC DISC 120PF+-10% 50V
C2406	0890022	CERAMIC DISC 100PF+-10% 50V
C2407	0890024	CERAMIC DISC 150PF+-10% 50V
C2409	0890011	CERAMIC DISC 15PF+-5% 50V
C2410	0890018	CERAMIC DISC 56PF+-50% 50V

SYMBOL-No	P-No	DESCRIPTION
C2411	0890022	CERAMIC DISC 100PF+-10% 50V
C2752	0256155	ELECTROLYTIC 10UF 16V
C2753	0256151	ELECTROLYTIC 1UF 50V
C2755	0890044	CERAMIC DISC 0.022UF+80-20% 25V
C2756	0890035	CERAMIC DISC 1000PF 50V
		RESISTORS
R 401	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 402	0103864	CHIP RESISTOR 56KOHM+-5% 0.1W
R 403	0103850	CHIP RESISTOR 3.9KOHM+-5% 0.1W
R 404	0103837	CHIP RESISTOR 330 OHM+-5% 0.1W
R 406	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 407	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 408	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 409	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 410	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 411	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 412	0103819	CHIP RESISTOR 10 OHM+-5% 0.1W
R 413	0103864	CHIP RESISTOR 56KOHM+-5% 0.1W
R 414	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R 415	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R 416	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 417	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 418	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 419	0103869	CHIP RESISTOR 150KOHM+-5% 0.1W
R 420	0103937	CHIP RESISTOR 1.5KOHM+-5% 1/8W
R 421	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 422	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R 424	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R 426	0103850	CHIP RESISTOR 3.9KOHM+-5% 0.1W
R 429	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 430	0103939	CHIP RESISTOR 2.2KOHM+-5% 1/8W
R 432	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 433	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R 434	0103875	CHIP RESISTOR 470KOHM+-5% 0.1W
R 501L	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 501R	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 503L	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 503R	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 504L	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 504R	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R 505L	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 505R	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 506L	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 506R	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R 509L	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 509R	0103939	CHIP RESISTOR 2.2KOHM+-5% 1/8W
R 510L	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 510R	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R 511L	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 513L	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 513R	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 514L	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 514R	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 515L	0103954	CHIP RESISTOR 39KOHM+-5% 1/8W
R 515R	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R 516	0103971	CHIP RESISTOR 1MOHM+-5% 1/8W
R 518L	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 518R	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R 519	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 520	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 521L	0104124	CHIP RESISTOR 12KOHM+-1% 1/10W
R 521R	0104123	CHIP RESISTOR 8.2KOHM+-1% 1/10W
R 522L	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R 522R	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W

SYMBOL-No	P-No	DESCRIPTION
R 523L	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 523R	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R 524L	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 524R	0103858	CHIP RESISTOR 18KOHM+-5% 0.1W
R 525L	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 525R	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 526L	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 526R	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 527L	0103840	CHIP RESISTOR 560 OHM+-5% 0.1W
R 527R	0103840	CHIP RESISTOR 560 OHM+-5% 0.1W
R 528L	0103842	CHIP RESISTOR 820 OHM+-5% 0.1W
R 528R	0103842	CHIP RESISTOR 820 OHM+-5% 0.1W
R 529L	0103842	CHIP RESISTOR 820 OHM+-5% 0.1W
R 529R	0103842	CHIP RESISTOR 820 OHM+-5% 0.1W
R 530	0103881	CHIP RESISTOR 2.2MOHM+-10% 0.1W
R 531	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 532	0103854	CHIP RESISTOR 8.2KOHM+-5% 0.1W
R 533	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R 534	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R 535	0103873	CHIP RESISTOR 330KOHM+-5% 0.1W
R 536	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R 537	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R 538	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 539L	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 539R	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 541L	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 541R	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R 542L	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 542R	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R 543	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 544L	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R 545	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R 548L	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 548R	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R 550	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R 551	0103840	CHIP RESISTOR 560 OHM+-5% 0.1W
R 552	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R 656	0101738	METAL FILM 3.3KOHM 1/8W
R 660	0101734	METAL FILM 33KOHM 1/8W
R 679	0101731	METAL FILM 2.05KOHM 1/8W
R 683	0101739	METAL FILM 4.12KOHM 1/8W
R 685	0101732	METAL FILM 8.2KOHM
R 686	0101733	METAL FILM 16.5KOHM1/8W
R 692	0101734	METAL FILM 33KOHM 1/8W
R 693	0101735	METAL FILM 68KOHM 1/8W
R 694	0101736	METAL FILM 120KOHM+-1% 1/8W
R 695	0101737	METAL FILM 220KOHM 1/8W
⚠ R 852	0170492	FUSE RESISTOR 6.8 OHM 1/4W
R 856	0170476	FUSE RESISTOR 470HM+-5% 1/4W
R 860	0170481	FUSE RESISTOR 220HM+-5% 1/4W
RT 401	5006242	SEMI VARIABLE 220KOHM
RT 501L	5035077	SEMI VARIABLE 10KOHM
RT 501R	5035077	SEMI VARIABLE 10KOHM
RT 502L	5006239	SEMI VARIABLE 47KOHM
RT 502R	5006239	SEMI VARIABLE 47KOHM
RT 601	5035032	SEMI VARIABLE 220KOHM
RT 602	5035029	SEMI VARIABLE 47KOHM
RT 651	5035031	SEMI VARIABLE 100KOHM
RT 652	5035027	SEMI VARIABLE 10KOHM
RT 801	5035028	SEMI VARIABLE 22KOHM
RT1401	5035025	SEMI VARIABLE 2.2KOHM
RT2202	5030006	SEMI VARIABLE 4.7KOHM
RT2203	5030006	SEMI VARIABLE 4.7KOHM
RT2210	5006235	SEMI VARIABLE 2.2KOHM
RT2301	5030006	SEMI VARIABLE 4.7KOHM

SYMBOL-No	P-No	DESCRIPTION
RT2302	5030004	SEMI VARIABLE 1KOHM
RT2303	5035023	VARIABLE 470OHM
RV 751	5020223	VARIABLE 20KOHM
RV 752	5002091	VARIABLE 10KOHM
RV 753	5002092	VARIABLE 10KOHM
RV 754	5002094	VARIABLE 500 OHM
R1301	0103951	CHIP RESISTOR 22KOHM+-5% 1/8W
R1531	0103850	CHIP RESISTOR 3.9KOHM+-5% 0.1W
R1532	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1533	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1534	0104269	CHIP RESISTOR 43KOHM+-1% 1/10W
R1535	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1536	0104122	CHIP RESISTOR 33KOHM+-1% 0.1W
R1537	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R1538	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R1539L	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R1539R	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R1540L	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R1540R	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R1541L	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1541R	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R1542L	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R1542R	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R1543L	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R1543R	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R1544L	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R1544R	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R2201	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2202	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R2203	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R2204	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R2205	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R2206	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2208	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R2209	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R2210	0103841	CHIP RESISTOR 680 OHM+-5% 0.1W
R2211	0103839	CHIP RESISTOR 470OHM+-5% 0.1W
R2212	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R2213	0103840	CHIP RESISTOR 560 OHM+-5% 0.1W
R2214	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R2215	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2216	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R2217	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2218	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R2219	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R2220	0103841	CHIP RESISTOR 680 OHM+-5% 0.1W
R2221	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R2222	0103840	CHIP RESISTOR 560 OHM+-5% 0.1W
R2223	0103840	CHIP RESISTOR 560 OHM+-5% 0.1W
R2224	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2225	0103842	CHIP RESISTOR 820 OHM+-5% 0.1W
R2226	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R2227	0103840	CHIP RESISTOR 560 OHM+-5% 0.1W
R2228	0103842	CHIP RESISTOR 820 OHM+-5% 0.1W
R2229	0103827	CHIP RESISTOR 47 OHM+-5% 0.1W
R2230	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R2231	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R2232	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2233	0103842	CHIP RESISTOR 820 OHM+-5% 0.1W
R2235	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R2236	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R2237	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2238	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2239	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W
R2240	0103853	CHIP RESISTOR 6.8KOHM+-5% 0.1W

SYMBOL-No	P-No	DESCRIPTION
R2241	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R2242	0103856	CHIP RESISTOR 12KOHM+-5% 0.1W
R2243	0103832	CHIP RESISTOR 120OHM+-5% 0.1W
R2244	0103861	CHIP RESISTOR 33KOHM+-5% 0.1W
R2245	0103835	CHIP RESISTOR 220 OHM+-5% 0.1W
R2247	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R2248	0103871	CHIP RESISTOR 220KOHM+-5% 0.1W
R2249	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R2250	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R2252	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R2253	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R2254	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R2255	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R2256	0103860	CHIP RESISTOR 27KOHM+-5% 0.1W
R2257	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2258	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R2259	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R2260	0103842	CHIP RESISTOR 820 OHM+-5% 0.1W
R2261	0103841	CHIP RESISTOR 680 OHM+-5% 0.1W
R2262	0103851	CHIP RESISTOR 4.7KOHM+-5% 0.1W
R2263	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R2264	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R2265	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2266	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2267	0103844	CHIP RESISTOR 1.2KOHM+-5% 0.1W
R2268	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R2269	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2270	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R2271	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R2272	0103849	CHIP RESISTOR 3.3KOHM+-5% 0.1W
R2273	0103831	CHIP RESISTOR 100 OHM+-5% 0.1W
R2274	0103840	CHIP RESISTOR 560 OHM+-5% 0.1W
R2275	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R2276	0103841	CHIP RESISTOR 680 OHM+-5% 0.1W
R2278	0103859	CHIP RESISTOR 22KOHM+-5% 0.1W
R2279	0103841	CHIP RESISTOR 680 OHM+-5% 0.1W
R2280	0103829	CHIP RESISTOR 68OHM+-5% 0.1W

SEMI-CONDUCTORS

D 141	5380933	LED GL-451
D 304	5339131	DIODE 1SS254
D 306	5339131	DIODE 1SS254
D 307	5339131	DIODE 1SS254
D 308	5339131	DIODE 1SS254
D 401	5328951	DIODE DAN202K
D 522	5339131	DIODE 1SS254
D 601	5339381	DIODE ERA81-004
D 602	5332541	DIODE ERA81-004
D 651	5339131	DIODE 1SS254
D 655	5339131	DIODE 1SS254
D 671	5339131	DIODE 1SS254
D 672	5339131	DIODE 1SS254
D 673	5339131	DIODE 1SS254
D 674	5339131	DIODE 1SS254
D 675	5339131	DIODE 1SS254
D 676	5339131	DIODE 1SS254
D 677	5339131	DIODE 1SS254
D 678	5339131	DIODE 1SS254
D 751	5381663	DIODE SLH34VT3
D 752	5381661	LED SLH-34MT3
D 753	5339131	DIODE 1SS254
D 754	5336691	LED SEL3510G
D 755	5336692	LED SEL3810D
D 756	5336692	LED SEL3810D
D 761	5339381	DIODE ERA81-004

SYMBOL-No	P-No	DESCRIPTION
D 762	5339381	DIODE ERA81-004
D 765	5339131	DIODE 1SS254
D 766	5339131	DIODE 1SS254
D 769	5339131	DIODE 1SS254
D 770	5339131	DIODE 1SS254
D 771	5339131	DIODE 1SS254
D 772	5339131	DIODE 1SS254
D 773	5339131	DIODE 1SS254
D 774	5339131	DIODE 1SS254
D 775	5339131	DIODE 1SS254
D 776	5339131	DIODE 1SS254
D 777	5339131	DIODE 1SS254
D 778	5339131	DIODE 1SS254
⚠ D 852	5336371	DIODE RBA406B
D 854	5339231	DIODE 1SR35-100A
D 855	5339231	DIODE 1SR35-100A
⚠ D 856	5339241	DIODE EK14
⚠ D 857	5339241	DIODE EK14
⚠ D 858	5339241	DIODE EK14
⚠ D 859	5339241	DIODE EK14
⚠ D 860	5333351	DIODE D3SBA10
D 862	5339231	DIODE 1SR35-100A
D 863	5339231	DIODE 1SR35-100A
D 871	5339231	DIODE 1SR35-100A
D 896	5339231	DIODE 1SR35-100A (For S751AW)
D 897	5330501	DIODE U0-5B S1 (For S751AW)
D 898	5330501	DIODE U0-5B S1 (For S751AW)
D 899	5330501	DIODE U0-5B S1 (For S751AW)
D 901	5339231	DIODE 1SR35-100A
D 902	5339381	DIODE ERA81-004
D 904	5339131	DIODE 1SS254
D 911	5339131	DIODE 1SS254
D 912	5339131	DIODE 1SS254
D 913	5332541	DIODE ERA81-004
D 916	5333891	DIODE 1SR35-2A
D 991	5339131	DIODE 1SS254
D1402	5339131	DIODE 1SS254
D1403	5339131	DIODE 1SS254
D1404	5339131	DIODE 1SS254
D1531	5339131	DIODE 1SS254
D1532	5339131	DIODE 1SS254
D1851	5339171	DIODE 1SS130
D1852	5339171	DIODE 1SS130
D1853	5339131	DIODE 1SS254
D1854	5339171	DIODE 1SS130
D1855	5339171	DIODE 1SS130
D1856	5339131	DIODE 1SS254
D1859	5332541	DIODE ERA81-004
D2201	5328321	DIODE MA151K (MH)
D2202	5328321	DIODE MA151K (MH)
D2203	5328321	DIODE MA151K (MH)
D2301	5339131	DIODE 1SS254
D2302	5339131	DIODE 1SS254
D2303	5339131	DIODE 1SS254
D2304	5339131	DIODE 1SS254
D2305	5339131	DIODE 1SS254
D2306	5339131	DIODE 1SS254
D2307	5339131	DIODE 1SS254
D2308	5339131	DIODE 1SS254
D2309	5339131	DIODE 1SS254
D2310	5339131	DIODE 1SS254
D2311	5339131	DIODE 1SS254
D2312	5339131	DIODE 1SS254
D2313	5339131	DIODE 1SS254
D2314	5339131	DIODE 1SS254

SYMBOL-No	P-No	DESCRIPTION
D2757	5339131	DIODE 1SS254
D2759	5339131	DIODE 1SS254
D2760	5339131	DIODE 1SS254
IC 141	5333953	IC ON2170(Q)
IC 142	5333953	IC ON2170(Q)
IC 301	1341691	IC NJM2234S
IC 302	1341693	IC NJM2233BSA
IC 401	1341493	IC XRA7767AS
IC 501	1360051	IC BA7730S
IC 502	1350922	IC XRA7700K1
IC 503	5364601	IC M5278L05
IC 601	1360041	IC HD49741NT
IC 651	5366581	IC BA6303
IC 652	5359901	IC UPD4066C
IC 671	1345122	IC M50747-804SP
IC 672	5359901	IC UPD4066C
IC 751	1345084	IC M50959-225SP
IC 752	5301561	IC M6M80021P
IC 753	1340002	IC S-8053ALB
IC 851	1387941	IC STK7271
IC 901	1345157	IC HD404019A22S
IC 902	5300795	IC XRA6209U4
IC 903	1380302	PWB ASSY END/REEL SIG.AMP
IC 904	1340112	IC PST520C
IC 971	1345212	IC M50727-141SP
IC1301	1388131	PWB ASSY AUDIO MPX
IC1401	5301257	IC M50554-149SP
IC1402	1340021	IC NJM2229S
IC1403	5364601	IC M5278L05
IC1501	5366911	IC BA6138
IC1511	5301031	IC MC14053B
IC1531	5350607	IC RC4558
IC1532	5350607	IC RC4558
IC1651	1360072	IC XRA6459P1
IC1851	1341953	IC M5278D12
IC1971	1380621	PWB ASSY HES8079
IC2201	1371001	PWB ASSY VHS/S-VHS DISCRI
IC2202	1360081	IC HA11B108NT
IC2204	1360352	IC NJM7805FF
IC2301	1360461	IC NJM2252L
IC2302	1360461	IC NJM2252L
IC2304	1371103	IC HT4995B
IC2305	1342301	IC NJM2245S
IC2306	1381322	PWB ASSY CCD UNIT
IC2307	1380823	PWB ASSY TTL COMB FILTER
IC2308	1378911	PWB ASSY CHROMA LEVEL CONTROL
IC2309	1380732	PWB ASSY CORRELATION SW
IC2310	1342301	IC NJM2245S
IC2311	1360481	IC NJM2258L
IC2312	1371863	IC HT7153B
IC2313	1380941	PWB ASSY COLOR NR(HES8089)
IC2751	5350607	IC RC4558
Q 141	5324661	TRANSISTOR PT-483F1
Q 142	5324661	TRANSISTOR PT-483F1
Q 301	1320004	TRANSISTOR 2SA854SQR
Q 302	1320004	TRANSISTOR 2SA854SQR
Q 304	5327075	TRANSISTOR XDC144ES
Q 305	5327075	TRANSISTOR XDC144ES
Q 307	5327075	TRANSISTOR XDC144ES
Q 401	5328796	TRANSISTOR XDC144EK
Q 402	5328796	TRANSISTOR XDC144EK
Q 403	5328971	TRANSISTOR 2SC2412KBRST
Q 404	5328796	TRANSISTOR XDC144EK
Q 405	5328796	TRANSISTOR XDC144EK
Q 406	5327101	TRANSISTOR 2SC3553(B/C)

SYMBOL-No	P-No	DESCRIPTION
Q 501L	5328721	TRANSISTOR 2SD1328
Q 501R	5328721	TRANSISTOR 2SD1328
Q 502L	5328971	TRANSISTOR 2SC2412KBRST
Q 502R	5328971	TRANSISTOR 2SC2412KBRST
Q 521	5328796	TRANSISTOR XDC144EK
Q 522	5328971	TRANSISTOR 2SC2412KBRST
Q 523	5328971	TRANSISTOR 2SC2412KBRST
Q 524	5328796	TRANSISTOR XDC144EK
Q 601	5327075	TRANSISTOR XDC144ES
Q 602	5327072	TRANSISTOR DTA124ES
Q 603	5327075	TRANSISTOR XDC144ES
Q 604	5327063	TRANSISTOR 2SC1740S
Q 605	5327075	TRANSISTOR XDC144ES
Q 651	5327063	TRANSISTOR 2SC1740S
Q 652	5327075	TRANSISTOR XDC144ES
Q 671	5327063	TRANSISTOR 2SC1740S
Q 672	5327075	TRANSISTOR XDC144ES
Q 753	5327061	TRANSISTOR 2SC1740S-ST
Q 754	5327061	TRANSISTOR 2SC1740S-ST
Q 759	5323562	TRANSISTOR DTA124F
Q 760	5327061	TRANSISTOR 2SC1740S-ST
Q 761	5327061	TRANSISTOR 2SC1740S-ST
Q 762	5327061	TRANSISTOR 2SC1740S-ST
Q 763	1320004	TRANSISTOR 2SA854SQR
Q 803	5327071	TRANSISTOR DTC124ES
Q 851	5327261	TRANSISTOR 2SB1326(Q)
Q 852	5327071	TRANSISTOR DTC124ES
Q 902	5327091	TRANSISTOR 2SD1504E
Q 904	5327075	TRANSISTOR XDC144ES
Q 991	5327075	TRANSISTOR XDC144ES
Q1301	5328796	TRANSISTOR XDC144EK
Q1302	5326711	TRANSISTOR IMD2
Q1401	1320004	TRANSISTOR 2SA854SQR
Q1402	5327063	TRANSISTOR 2SC1740S
Q1403	5327063	TRANSISTOR 2SC1740S
Q1404	5327075	TRANSISTOR XDC144ES
Q1405	5327075	TRANSISTOR XDC144ES
Q1408	1320004	TRANSISTOR 2SA854SQR
Q1511	5327101	TRANSISTOR 2SC3553(B/C)
Q1512	1320003	TRANSISTOR 2SA854(S)
Q1513	5327075	TRANSISTOR XDC144ES
Q1514	5327075	TRANSISTOR XDC144ES
Q1531L	5328971	TRANSISTOR 2SC2412KBRST
Q1531R	5328971	TRANSISTOR 2SC2412KBRST
Q1851	1320004	TRANSISTOR 2SA854SQR
Q1852	5327161	TRANSISTOR DTC143ZS
Q1853	5327072	TRANSISTOR DTA124ES
Q1854	5327075	TRANSISTOR XDC144ES
Q1857	1320004	TRANSISTOR 2SA854SQR
Q1858	5327075	TRANSISTOR XDC144ES
Q1859	5327131	TRANSISTOR 2SB562C
Q1860	5327063	TRANSISTOR 2SC1740S
Q1861	5324861	TRANSISTOR 2SD2061
Q1862	5327063	TRANSISTOR 2SC1740S
Q1863	1320004	TRANSISTOR 2SA854SQR
Q1864	5327075	TRANSISTOR XDC144ES
Q1865	5327075	TRANSISTOR XDC144ES
Q1971	5327063	TRANSISTOR 2SC1740S
Q1972	5327063	TRANSISTOR 2SC1740S
Q1973	5327063	TRANSISTOR 2SC1740S
Q1974	5327063	TRANSISTOR 2SC1740S
Q1975	5327021	TRANSISTOR 2SA844CD
Q1976	5327075	TRANSISTOR XDC144ES
Q2201	5326101	TRANSISTOR FMW1
Q2203	5328796	TRANSISTOR XDC144EK
Q2204	5328211	TRANSISTOR 2SA1121C(SC)
Q2205	5328796	TRANSISTOR XDC144EK
Q2206	5328961	TRANSISTOR 2SA1037KERS
Q2207	5328961	TRANSISTOR 2SA1037KERS
Q2208	5328971	TRANSISTOR 2SC2412KBRST
Q2209	5328971	TRANSISTOR 2SC2412KBRST
Q2210	5328961	TRANSISTOR 2SA1037KERS
Q2211	5328971	TRANSISTOR 2SC2412KBRST
Q2212	5328971	TRANSISTOR 2SC2412KBRST
Q2213	5328971	TRANSISTOR 2SC2412KBRST
Q2214	5328971	TRANSISTOR 2SC2412KBRST
Q2215	5328971	TRANSISTOR 2SC2412KBRST
Q2216	5328971	TRANSISTOR 2SC2412KBRST
Q2217	5328971	TRANSISTOR 2SC2412KBRST
Q2218	5328971	TRANSISTOR 2SC2412KBRST
Q2219	5328796	TRANSISTOR XDC144EK
Q2220	5328971	TRANSISTOR 2SC2412KBRST
Q2221	5328971	TRANSISTOR 2SC2412KBRST
Q2222	5326103	TRANSISTOR FMS1
Q2223	5328971	TRANSISTOR 2SC2412KBRST
Q2224	5326201	TRANSISTOR FMG2
Q2301	5327075	TRANSISTOR XDC144ES
Q2302	5327075	TRANSISTOR XDC144ES
Q2303	5327075	TRANSISTOR XDC144ES
Q2304	5327063	TRANSISTOR 2SC1740S
Q2305	5327063	TRANSISTOR 2SC1740S
Q2306	5327063	TRANSISTOR 2SC1740S
Q2307	5327063	TRANSISTOR 2SC1740S
Q2308	5327075	TRANSISTOR XDC144ES
Q2309	5327075	TRANSISTOR XDC144ES
Q2310	5327063	TRANSISTOR 2SC1740S
Q2311	5327075	TRANSISTOR XDC144ES
Q2312	5327063	TRANSISTOR 2SC1740S
Q2313	5327063	TRANSISTOR 2SC1740S
Q2314	5323903	TRANSISTOR 2SC1740S-RS
Q2315	1320004	TRANSISTOR 2SA854SQR
Q2316	5327075	TRANSISTOR XDC144ES
Q2317	5327063	TRANSISTOR 2SC1740S
Q2318	5327075	TRANSISTOR XDC144ES
Q2319	5327063	TRANSISTOR 2SC1740S
Q2320	5327063	TRANSISTOR 2SC1740S
Q2321	5327063	TRANSISTOR 2SC1740S
Q2322	5327075	TRANSISTOR XDC144ES
Q2323	5327063	TRANSISTOR 2SC1740S
Q2324	5327075	TRANSISTOR XDC144ES
Q2325	5327063	TRANSISTOR 2SC1740S
Q2326	5327063	TRANSISTOR 2SC1740S
Q2327	1320004	TRANSISTOR 2SA854SQR
Q2328	1320004	TRANSISTOR 2SA854SQR
Q2329	5327063	TRANSISTOR 2SC1740S
Q2330	5327075	TRANSISTOR XDC144ES
Q2331	5327075	TRANSISTOR XDC144ES
Q2332	5327075	TRANSISTOR XDC144ES
Q2333	5327063	TRANSISTOR 2SC1740S
Q2334	5327063	TRANSISTOR 2SC1740S
Q2335	5327063	TRANSISTOR 2SC1740S
Q2336	5327063	TRANSISTOR 2SC1740S
Q2337	5327071	TRANSISTOR DTC124ES
Q2338	1320004	TRANSISTOR 2SA854SQR
Q2339	5327063	TRANSISTOR 2SC1740S
Q2341	5327075	TRANSISTOR XDC144ES
Q8802	5321666	TRANSISTOR 2SC2021SE
QF 401	5721941	IC PROTECTOR
QF1511	5721941	IC PROTECTOR
ZD 301	5339282	ZENER DIODE HZS6-B2

SYMBOL-No	P-No	DESCRIPTION
ZD 303	5339274	ZENER DIODE HZS15-3
ZD 763	5339254	ZENER DIODE HZS30-1
ZD 767	5339262	ZENER DIODE HZS6-C2
ZD 768	5339262	ZENER DIODE HZS6-C2
ZD 801	5366151	IC UPC574J
ZD 802	5339264	ZENER DIODE HZS2B1
ZD 851	5339278	ZENER DIODE HZS22-2 (For S751AW)
ZD 901	5339281	ZENER DIODO HZS11-A2
ZD 903	5339272	ZENER DIODE HZS6-A3
ZD 904	5330395	ZENER DIODE HZ6A3
ZD 971	5339272	ZENER DIODE HZS6-A3
ZD1851	5339274	ZENER DIODE HZS15-3
ZD1871	5339296	ZENER DIODE HZS5B2 (For S751AW)
ZD2754	5339262	ZENER DIODE HZS6-C2
TRANSFORMERS		
⚠ T 401	5261462	OSCILLATOR,BIAS
⚠ T 851	5214274	TRANSFORMER.POWER (For S751A)
T 851	5214382	TRANSFORMER.POWER (For S751AW)
T1501	5261432	OSCILLATOR,BIAS
COILS		
L 301	5159077	CHOKE COIL 100UH+-10%
L 302	5159077	CHOKE COIL 100UH+-10%
L 303	5159154	CHOKE COIL 100UH
L 401	5159077	CHOKE COIL 100UH+-10%
L 402	5159111	CHOKE COIL 5600UH
L 501	5159114	COIL 15MH
L 751	5159154	CHOKE COIL 100UH
L 801	5159073	CHOKE COIL 47UH+-10%
L 802	5159077	CHOKE COIL 100UH+-10%
L 851	5220232	COIL,CHOKE 200UH
L 852	5220233	COIL,CHOKE 68UH
L1401	5159077	CHOKE COIL 100UH+-10%
L1403	5159147	CHOKE COIL 33UH
L1404	5159147	CHOKE COIL 33UH
L1511	5159077	CHOKE COIL 100UH+-10%
L1971	5159145	CHOKE COIL 22UH
L1972	5159145	CHOKE COIL 22UH
L1973	5159077	CHOKE COIL 100UH+-10%
L1974	5159143	CHOKE COIL 15UH
L2201	5159212	CHOKE COIL 220UH
L2203	5159207	CHOKE COIL 100UH
L2204	5159198	CHOKE COIL 22UH
L2205	5159212	CHOKE COIL 220UH
L2206	5159196	CHOKE COIL 15UH
L2207	5159196	CHOKE COIL 15UH
L2208	5159195	CHOKE COIL 12UH
L2209	5159198	CHOKE COIL 22UH
L2211	5159207	CHOKE COIL 100UH
L2212	5159205	CHOKE COIL 68UH
L2213	5159207	CHOKE COIL 100UH
L2214	5152349	CHOKE COIL 820UH
L2215	5159212	CHOKE COIL 220UH
L2301	5152337	CHOKE COIL 100UH+-10%
L2302	5159077	CHOKE COIL 100UH+-10%
L2303	5152337	CHOKE COIL 100UH+-10%
L2304	5159149	CHOKE COIL 47UH
L2305	5159077	CHOKE COIL 100UH+-10%
L2306	5159077	CHOKE COIL 100UH+-10%
L2307	5159077	CHOKE COIL 100UH+-10%
L2308	5159077	CHOKE COIL 100UH+-10%
L2309	5159141	CHOKE COIL 10UH
L2310	5159087	COIL,CHOKE 560UH
L2311	5159077	CHOKE COIL 100UH+-10%
L2312	5159077	CHOKE COIL 100UH+-10%
L2313	5159077	CHOKE COIL 100UH+-10%
L2314	5159077	CHOKE COIL 100UH+-10%
L2315	5159077	CHOKE COIL 100UH+-10%
L2316	5159147	CHOKE COIL 33UH
L2318	5159086	CHOKE COIL 470UH
L2321	5159075	CHOKE COIL 68UH+-10%
CRYSTALS		
X 671	5784478	OSCILLATOR
X 751	5784478	OSCILLATOR
X 752	5780791	CRYSTAL
X 901	5784471	OSCILLATOR
X 971	5784472	OSCILLATOR
X1401	5781793	OSCILLATOR
X1402	5781781	CRYSTAL
X2201	5781901	CRYSTAL
MISCELLANEOUS		
BL 671	5272373	LINE FILTER
BL 751	5272372	CORE
BL 901	5272373	LINE FILTER
BL 971	5272373	LINE FILTER
CP 501L	5163101	BAND PASS FILTER
CP 501R	5163102	BAND PASS FILTER
CP2201	5162754	HIGHT PASS FILTER
CP2202	5169024	LOW PASS FILTER
CP2203	5163231	FILTER
CP2204	5163281	BAND PASS FILTER
CP2301	5163912	LC FILTER
CP2302	5163951	LC FILTER
CP2303	5163941	LC FILTER
CP2304	5163674	FILTER
CP2305	5163675	FILTER
CP2306	5163834	LC FILTER
CP2307	5163892	FILTER
CP2308	5162642	DELAY LINE
DG 751	5315183	FLUORESCENT INDICATOR TUBE
DL2201	5785824	DELAY LINE
⚠ FU 851	5721982	FUSE 2A (For S751A)
⚠ FU 851	5721470	FUSE 1.6A (For S751AW)
⚠ FU 852	5721983	FUSE 3A
⚠ FU 853	5721405	FUSE 1.6A
⚠ FU 854	5721412	FUSE 1.25A
JK 301	5690285	JACK PLATE
JK 302	5676602	JACK
JK 501	5690571	PLATE,JACK
JK 751	5673771	JACK
J2301	5677451	MINI CONNECTOR
RF 301	5589241	PWB ASSY RF MOD/ANT SW/SPLIT
S 141	5635321	SWITCH
S 142	5635331	SWITCH
S 751	5622183	SWITCH
S 752	5622183	SWITCH
S 753	5622183	SWITCH
S 763	5635061	SWITCH
S 764	5635161	SWITCH
S 765	5635061	SWITCH
⚠ S 851	5605347	SWITCH (For S751AW)
SWR 751	5610781	SWITCH
TH 851	5390192	THYRYSTOR CR8AMW-8 (For S751AW)
TH2201	5340363	THERMISTOR ERTD2FHL
TH2301	5340367	THERMISTOR ERT-D2FGL202G
TH2302	5340363	THERMISTOR ERTD2FHL

SYMBOL-No	P-No	DESCRIPTION
TH2303	5340363	THERMISTOR ERTD2FHL
TH2304	5340363	THERMISTOR ERTD2FHL
TH2305	5340363	THERMISTOR ERTD2FHL
TH2306	5340363	THERMISTOR ERTD2FHL
TH2307	5340361	THERMISTOR ERTD2FHL

SYMBOL-No	P-No	DESCRIPTION
BC 851	5272371	LINE FILTER
BU 751	5409272	BUZZER
RM 751	5491523	PWB ASSY IR RECIEVER

MECHANICAL PARTS LIST

SYMBOL-No	P-No	DESCRIPTION
		FOR FINAL ASSEMBLY
101	6005741	COVER,TOP
102	6484413	PIECE
103	6006673	COVER.BOTTOM (For S751A)
103	6006674	COVER.BOTTOM (For S751AW)
104	6484441	HOLDER
105	5601585	SWITCH
106	6672629	PANEL,DOOR
107	6484884	PIECE,DOOR
108	7442821	BRACKET
109	6809922	DOOR UNIT
110	6089404	KNOB
111	6089434	KNOB
112	6442021	INSULATOR(L)
113	6442031	INSULATOR(R)
114	6485615	PANEL,FRONT
115	4722801	COVER,JACK
116	6089374	KNOB
117	6338212	HINGE
118	6249249	DOOR,CASSETTE
119	7744291	FELT,LEG
120	7674011	CUSHION
121	6898241	STUD
122	6803331	HOLDER
124	6714214	NYLON RIVET
125	7708062	STAY,REAR
126	6714213	NYLON RIVET
127	6089361	KNOB
128	6089351	KNOB
129	6089391	KNOB
130	6484797	PANEL,REAR
131	7495241	PLATE,SHIELD
134	7442721	HOLDER
135	6675181	PLATE
137	6597242	RUBBER
138	5850753	CORD,POWER
139	7674842	CUSHION(F)
140	5588572	TUNER IF BLOCK
142	5886334	CORD,PLUG
144	7744691	CUSHION
145	6007091	COVER
146	7709592	COVER (For S751AW)
147	4891541	HOLDER (For S751AW)
148	6814231	BRACKET
149	6808371	HINGE
202	6915922	SCREW
203	7469051	BASE
204	5434061	HEAD
205	6304906	SPRING
206	6522752	SPRING
207	7785673	NUT
208	6820333	BRAKE
209	6555504	SPRING
210	6416021	REEL,SUPPLAY

SYMBOL-No	P-No	DESCRIPTION
211	7789123	POLYSLIDER WASHER
212	6416041	REEL,TAKE UP
213	7789123	POLYSLIDER WASHER
214	6975768	ARM,PRESSER ROLLER
215	6807986	BLOCK,SLIDER
216	7412823	PLATE
217	7429651	GEAR,LOADING(L)
218	7429661	GEAR,LOADING(R)
219	6915843	BASE,GUIDE ROLLER(IN)
220	7794883	ROLLER
221	6915862	BASE,GUIDE ROLLER(OUT)
222	6911004	BASE
223	5445851	HEAD FULL ERASE
224	7795111	ARM
225	4508237	GUIDE,TAPE
226	6555431	SPRING
227	7794953	BAND,TENTION
228	7469012	ARM
229	6555446	SPRING
230	6897265	BRACKET
231	6896752	ARM
232	6555061	SPRING
234	1378764	PWB ASSY PRE AMP
235	7795161	BLOCK,LOADING
236	7428087	BRACKET
237	7468951	ARM
238	6915891	ARM
239	7468972	ARM
240	7468991	ARM
241	6896906	BRAKE
242	6551153	SPRING
243	6804792	BRAKE
244	7794931	HOLDER
246	6897251	ARM
247	6555483	SPRING
248	6820151	ARM
249	6437961	GEAR
250	6437981	WHEEL
251	6555052	SPRING
252	7799012	WASHER
256	5601521	SWITCH
259	4508235	GUIDE
260	6806383	SHAFT
261	6916041	ARM
262	6437971	GEAR
263	6820322	BRAKE
264	6320576	SPRING
266	6820103	ARM
267	6556317	SPRING
268	6814316	BRAKE,SUB
269	7472092	BRACKET
270	7472125	ARM
271	7429631	BRACKET
272	7429641	BRACKET
273	7788341	WASHER

SYMBOL-No	P-No	DESCRIPTION
274	6437873	GEAR
275	6437901	GEAR
276	6440091	GEAR
277	6437893	GEAR
278	6807861	ARM
279	6807853	ARM
280	7469471	BRACKET
281	7788348	WASHER
301	5571662	MOTOR,DC
302	6807879	BASE,CLUTCH
303	6356571	BELT,REEL
304	6401043	ARM
305	6434852	RACK
402	7412574	BRACKET,SIDE(R)
403	6896685	BRACKET,SIDE(R)
404	6896971	WORM WHEEL ASSY
405	6435571	WORM
406	4508221	WORM SHAFT
407	6896623	ARM,DOOR
408	6896632	ARM-SWITCH
409	6302474	SPRING
410	6897041	ARM-SWITCH
411	7412583	BRACKET-GEAR
412	7449177	HOLDER,CASSETTE
413	7449163	BASE,HOLDER
414	6896664	HOLDER,CASSETTE (R)
415	7428113	HOLDER,STAY
416	6820361	ARM
417	6897001	ARM
418	6556241	SPRING
419	6896673	HOLDER,CASSETTE (L)
420	7412944	ARM
421	6555772	SPRING
422	7412953	SPRING
423	6806521	HOLDER,FRONT
424	7580791	SHAFT ASSY
425	7412552	BRACKET,SIDE(L)
426	7794391	WASHER
427	6551551	SPRING
501	5436355	CYLINDER (CY-Z7C4-W)
502	5571602	MOTOR,CYLINDER
503	5792635	BRUSH,CYLINDER
901	8699408	SCREW
902	8699412	SCREW (3X12) BLACK
903	8691308	SCREW BT2.6MMDX8MM
904	8724105	SCREW (2X5)
905	8691308	SCREW BT2.6MMDX8MM
906	8691406	3X6 BT BIND SCREW
907	8639108	SCREW(2X8)
908	7785351	SCREW (4X14)

SYMBOL-No	P-No	DESCRIPTION
909	8699416	SCREW(BT3X16)BLACK
910	8691408	SCREW (3X8)
911	7781582	FALT SCREW-3MMDX10MM (BLACK)
912	8699406	SCREW (3X6)
913	8699410	SCREW(3X10)
951	8691410	SCREW
952	8691308	SCREW BT2.6MMDX8MM
953	8699408	SCREW
954	7781872	SCREW-3MMDX8MM
955	7773086	SCREW
956	8741414	SCREW (3X14)
957	8691412	SCREW (3X12)
958	8691408	SCREW (3X8)
959	8711406	SCREW - 3X6 PAN HEAD SCREW
960	8741412	SCREW (B3X12)
961	7785941	SCREW
962	8711404	SCREW - 3X4 PAN HEAD SCREW
963	7775581	SCREW(M3X14)
964	8711104	SCREW 2X4
965	8741416	BIND HEAD SCREW 3MMDX16MM
966	8741408	SCREW (B3X8)

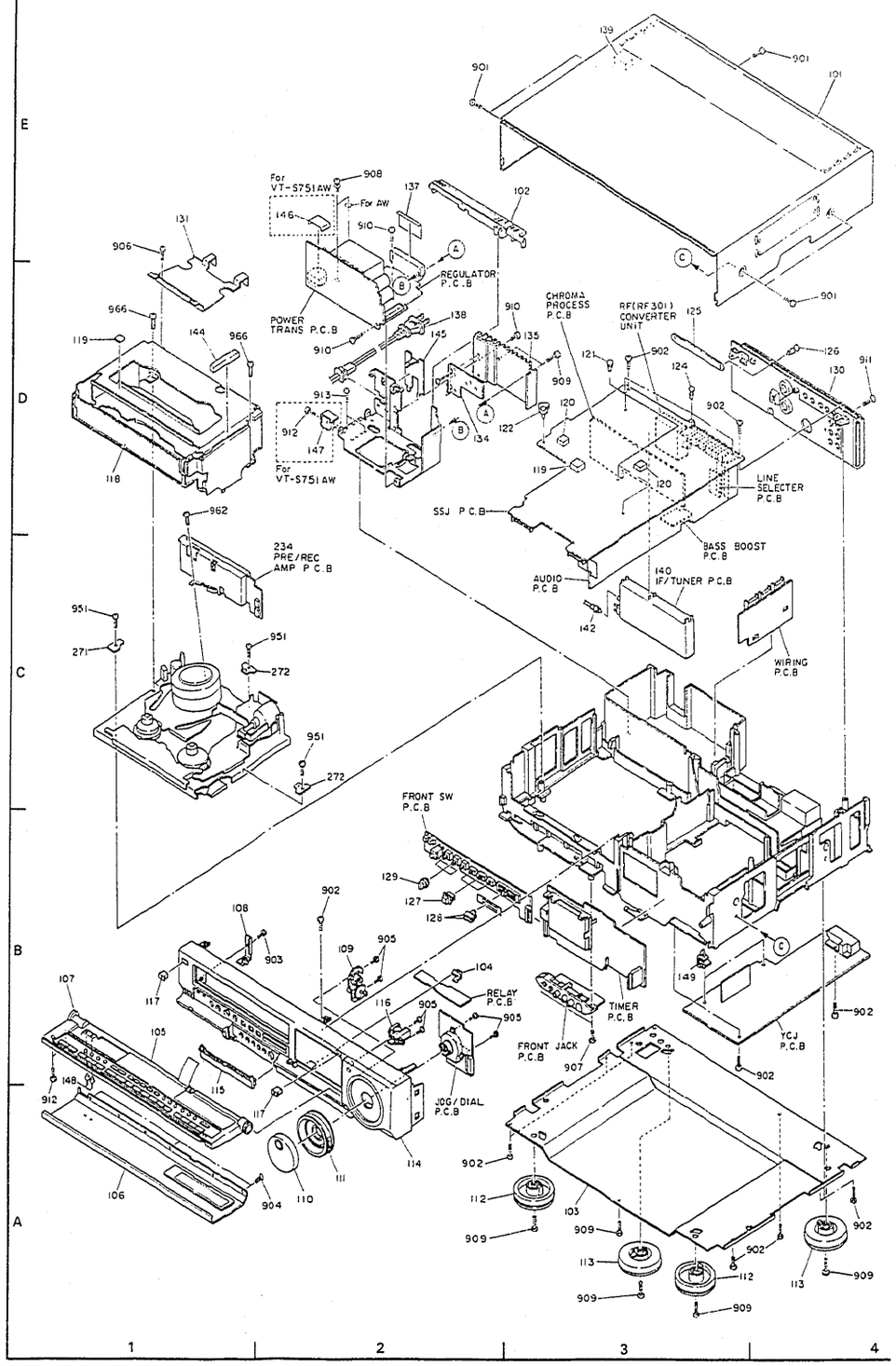
FOR ACCESSARIES

	5858851	VCR COAXIAL RF CABLE
	5856023	CORD
	5857111	YC CABLE
	5615652	REMOTE HAND SET
	5662611	SEIMENS PLUG (For S751AW)

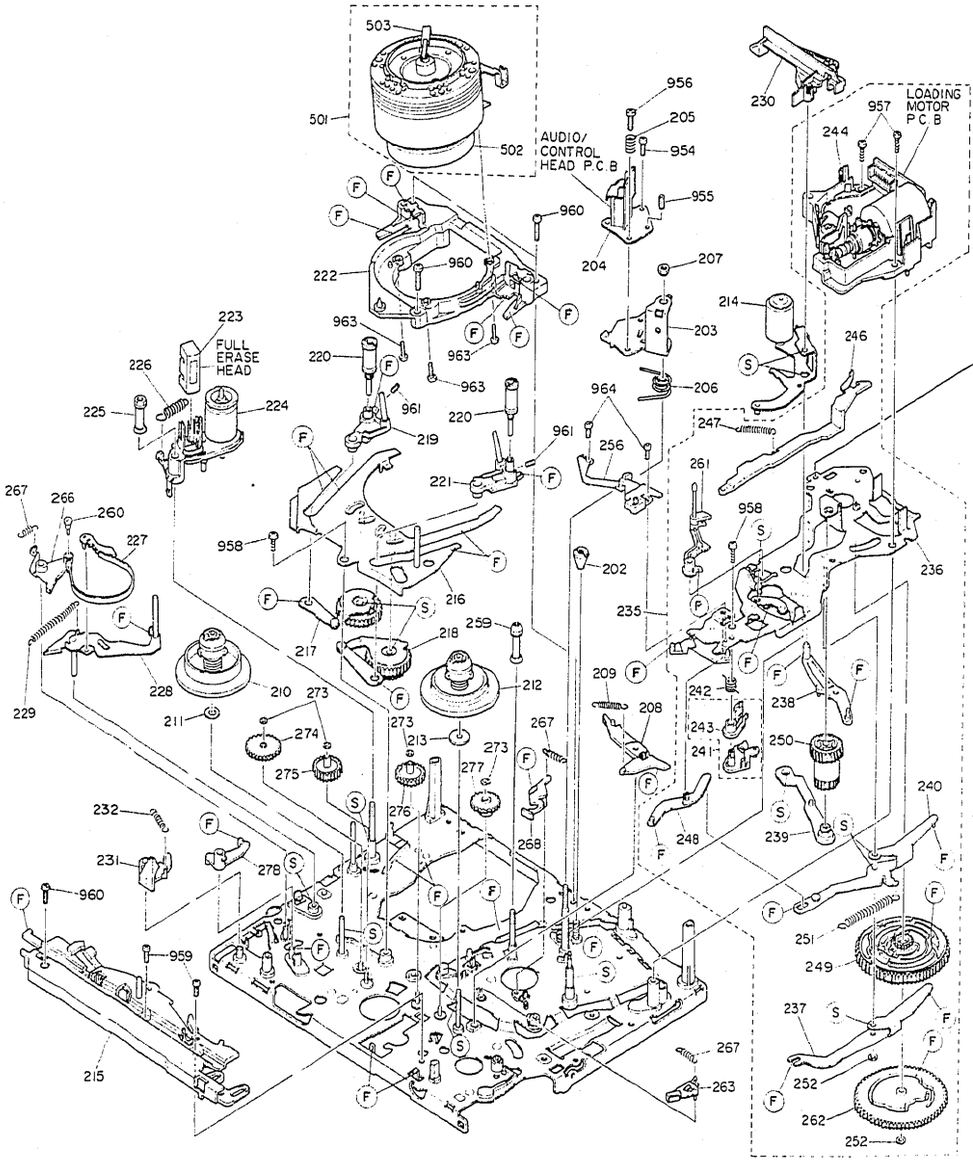
FOR REMOTE CONTROL

1	5615872	COVER
2	5615902	CASE.UPPER
3	5615931	PLATE
4	5615951	CASE.BOTTOM
5	5615941	LID.BATTERY
6	5616041	IC M50934-057
7	5616091	LID
8	5616051	CRYSTAL
9	5616031	KNOB.JOG
10	5616021	KNOB.SHUTTLE

EXPLODED VIEWS
CABINET SECTION



CHASSIS SECTION

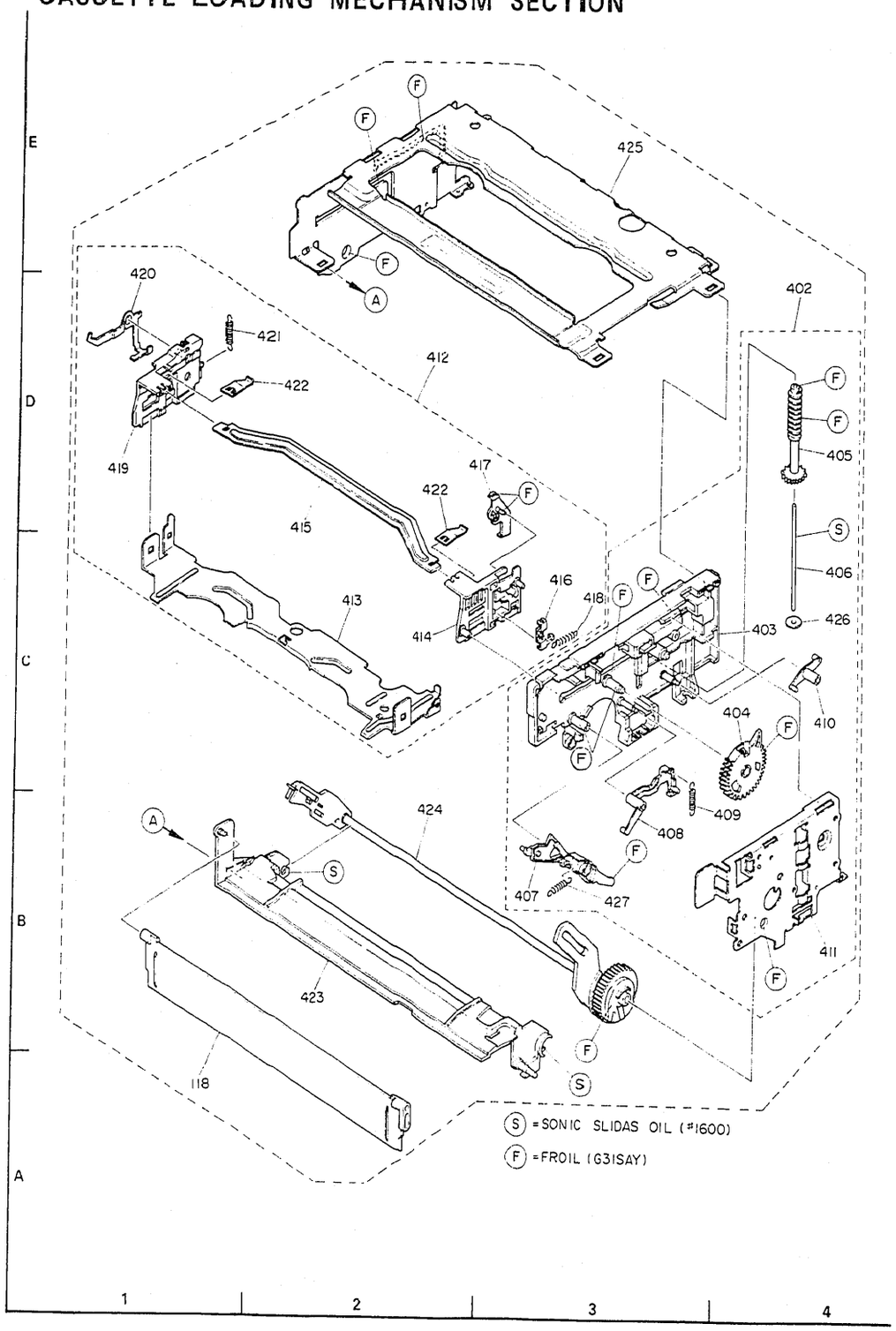


REMOTE CONTROL SECTION

A B C D E

1 2 3 4 5 6 7 8

CASSETTE LOADING MECHANISM SECTION



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